The Builder.

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Fifteenth-Century London.

THE history of London is particularly rich in records of the wise acts of the men of mark who have filled the public offices of the City. Many of the old Lord Mayors, whose names have come down to us, have been exceptionally endowed with strength of character and the capability of governing well; but there are others less known to fame whose actions are worthy to be recorded, and one of these was William Gregory, Mayor of London in the thirtieth year of Henry VI. (1451-52). He was the son of Roger Gregory, of Mildenhall, in Suffolk, but the date of his birth is unknown; it is believed however, to have been at the close of the fourteenth century. He served the office of Sheriff in 1436, and made his will in 1465, fourteen months before his death. At the latter period he was living in the parish of St. Mary Aldermary, where he directs that he should be buried, but, according to Stow, he was actually buried in the Church of St. Anne, Aldersgate. This will is a long production containing a very curious list of bequests. Money was left to the sick poor of the hospitals of St. Mary Spital without Bishopsgate, of St. Mary of Bethlehem, of Elsing Spital and of St. Thomas the Martyr, in Southwark. Also to the prisoners of Ludgate, Newgate, and the two Compters, of the King's Bench, Marshalsea, and Fleet, with the object of redeeming the debtors out of prison. Scholars were to be sent to school, and poor maidens and widows to be dowered. Gregory left money to the fraternity of Corpus Christi of Skinners, to which company he belonged, and to nearly all the conventual establishments in London, so that masses should be said for the good of his soul. One passage in the will is very singular as mentioning the female hermits that appear to have been located near the gates of the City. "Also I biqueth to the Recluse at Alhalowes in London Wall 6s. 8d. Also to the Ankeresse without Bishopsgate 6s. 8d. Also to the Ankeresse without Temple Barre 6s. 8d.; and to the Ankeresse at Westmynstre 6s. 8d., to thentent that they and everyche of them pray specialy for my soule and all the soules above saide." The improvement of London was not forgotten, and money was therefore left for the reparation of London Bridge, for the "making, repairing, and amending of pore chirches and of feble wales and brigges," and for the "reparation of the fowlest weyes aboute London."

Gregory's name has hitherto been little known, but Mr. James Gairdner has lately set up a claim for him as the author of a chronicle of London, which exists in MS. in the British Museum.* The ground for this ascription is to be found in the following passage in the chronicle under the heading "Gregory Skinner, Mayor of London, Anno xxx."—"And that year came a legate from the Pope of Rome with great pardon, for that pardon was the greatest pardon that ever came to England from the Conquest unto this time of my year being Mayor of London." This seemed to be sufficient authority for Mr. Gairdner to call it Gregory's Chronicle, but afterwards it was discovered that Gregory died in January, 1466-67, a year or two before the chronicle comes to an end. "It is quite clear, therefore, that if William Gregory wrote the part relating to his own mayoralty, he could not have been the author of the whole chronicle or the writer of the MS." The question of authorship must therefore remain for the present doubtful, but Mr. Gairdner believes that the chronicle really was written by Gregory, but transcribed and continued by another hand. The portion which relates to the author's own time is full of interesting information, and we propose to take note of such of the bits as will help us to picture the state of London in the fifteenth century.

If the "good old times" ever had any real existence it was not during the period treated of in this chronicle, for then the times were troublous, and "risings" were constantly occurring, so that on nearly every page we read of heads being smitten off. The account of Jack Cade's rebellion is of great value because it contains a statement to the effect that after the Battle of Sevenoaks the captain that led the Kentish men to Blackheath was not the original captain, but one who went by the same name. He came with a great host to the White Hart in Southwark, where he took up his lodging. London was open to the insurgents, who entered the city carrying dismay wherever they went. The captain plundered the rich citizens and beheaded his enemies on all sides, and then retired into Southwark. The Londoners rose at last, and there was some fighting on the bridge, many a man being "slayne and caste into the Temys, harnys, body, and alle."

London Bridge was for many years made hideous with the heads of beheaded men. Jack Cade set up there the heads of those he executed, and soon afterwards his own found rest in the same place. The heads were sent up from all parts of the country, and at one time so many were stuck up upon the bridge that men spoke of the "harvest of heads."

On Lord Mayor's Day, 1425, when there existed a feud between the Duke of Gloucester and Henry Beaufort, Bishop of Winchester, a battle on the bridge was imminent. The duke charged the mayor and aldermen to keep good watch in the city, and the gates of the bridge were carefully secured. On the morrow, the bishop's men drew the chains at the Southwark end, and knights and esquires issued out of Winchester House in battle array. When the news was spread abroad all the shops in the City were closed in haste, and people came down to the gates of the bridge. Then the Archbishop of Canterbury and the Prince of Portugal treated between the opposed potentates, Gloucester and Winchester, and eight times they rode "by twyne the duke and the byschoppe that day." At last peace was restored, every man went to his home, and no harm was done to the City. A little more than twenty years after this incident these two over-powerful nobles died. The "goode Duke Umfray, sum tyme Duke of Gloucester, passyde owte of this wrecchyde and false trobely worlde" at Shrovetide, and at Easter the Cardinal Bishop of Winchester also died. The English hatred of foreigners, which has continually shown itself in history, broke out in a very dangerous form in 1468. In that year the Princess Margaret was married to Charles of Burgundy, and some of the English suite that accompanied her to Flanders misconducted themselves so that the hospitality of the court of Charles the Bold was in consequence considerably restricted. On the return of the gentlemen of the princess's suite to England, they determined to take their revenge upon the Flemings in Southwark, and made arrangements with some boatmen to take them over the river to Horselydown, and they then proposed to tear the unfortunate foreigners out of their beds and murder them. Fortunately, the plot was discovered in time, and the chief movers in the matter were sent to prison. This is one of the incidents related in Gregory's Chronicle, which was not known before its publication. About the year 1467 many of the London churches were robbed of the boxes containing the Sacrament, and it was supposed that a company of heretics had joined together for the purpose, but it was afterwards found that certain men had mistaken copper boxes for silver gilt, and stolen them for very need. A curious story is here told, which, if it be the genuine statement of the culprit himself, is, as Mr. Gairdner observes, a very remarkable instance of the effect of a burdened conscience on the imagination and the senses. One of the thieves,—a locksmith, who made the instruments with which the locks were picked,—having been at church on several occasions after his crime to hear mass, had been unable to see the host at its elevation; but, after his confession in Newgate, he saw it quite plainly.

In the year 1410, there was a burning in Smithfield, which is very vividly described in the Chronicle. John of Badby, a heretic who did not believe in the "Sacrament of the Altar," was bound to the stake, and Harry, Prince of Wales (afterwards Henry V.), counselled him to hold the right faith of Holy Church. The Chan-

* This chronicle forms the third tract in the valuable volume lately published by the Camden Society, and entitled "The Historical Collections of a Citizen of London in the Fifteenth Century. Edited by James Gairdner."

cellor of Oxford then informed him what that faith was, and the Prior of St. Bartholomew's brought the sacrament to him, attended by twelve torches, but he continued to affirm that it was only holy bread. Fire was then put under the poor man, and he cried for mercy. The prince at his commanded that the fire should be taken away, and asked the martyr if he would forsake his heresy, promising life and enough of goods while he lived, but the man continued true, and the prince ordered him to be burnt at once, "and so he was." In 1415, "certain persons called Lollers" were arrested at the sign of the Axe, in Bishopsgate Without, and were hanged upon gallows which were called the Lollards' Gallows. With such dismal incidents the chronicle is full, even when a paragraph begins well it is apt to end ill: thus when Henry V. made his journey into Normandy (1415), the mayor, the sheriffs, and the aldermen took their leave of the king at Blackheath, giving him and his their blessing, and he cried out "Christ, save London." All seemed to be going well, but a plot to assassinate the king was discovered, and Sir Richard Camborowe, Earl of Cambridge, Sir Harry, Lord Scrope, and Sir Thomas Gray, with many more, were arrested, put in prison, and "done to death."

There is, however, a brighter side which we will now consider. In Henry IV.'s reign there was hurling in East Cheap "by the lorde Thomas and the lorde John, the kyngys sone, &c.," and when Henry VI. returned from France after being crowned at Paris he was received in London by the mayor and aldermen with the greatest splendour. At the end of London Bridge there was a tower with a giant within, and at the drawbridge was another tower, within which stood three "empresses" royally arrayed, named Nature, Grace, and Fortune. On the right of the "empresses" stood seven fair maidens clothed in white, who presented the king with the seven gifts of the Holy Ghost in the likeness of seven white doves; on the left were seven other fair maidens, who presented the king with seven gifts of worship. Then all the maidens sang a heavenly song, praising the king for his victory and safe return home. At the conduit of Cornhill was a tabernacle, in which sat a king surrounded by Mercy, Truth, and Cleanness. Before the king stood two judges and seven serjeants, representing judgment and righteousness. The procession rode at an easy pace to the Great Conduit, and there the pageant was so gorgeous that the chronicler says it was "like unto Paradise." The maidens, Mercy, Grace, and Piety, were seen drawing water and wines of joy and comfort, which ran for every man's health. Enoch and Eli, two old men, "like heavenly folk," saluted the king with words of grace and virtue. At the Cross in Cheap there was a royal castle of jasper green with the kings from the time of Edward the Confessor and Saint Louis in their coat armour. When the king arrived at St. Paul's, he was received by bishops with the dean and quire, and there he offered thanks to God. Then he rode to Westminster, and on the following day the mayor and aldermen brought him a hamper of silver and gilt, and 1,000*l.* in nobles.

In the year 1464 the mayor asserted his dignity and the honour of the City in a way that greatly pleased the chronicler. About Midsummer the Serjeants of the Coif gave a feast, to which Matthew Philip, the mayor of London, was invited. At dinner-time he came with his officers according to his degree, "for within London he is next unto the king," but on finding that the Earl of Worcester, by some blunder, was set before him, he went home again without meat or drink. When the officers of the feast found out the mistake they had made, they tried to remedy it by sending the mayor a present of "meat, bread, wine, and many divers subtleties." But when the messengers arrived they found quite as sumptuous a banquet actually laid upon the table, and the person who was to make the presentation felt ashamed of the task imposed upon him. He acquitted himself, however, gracefully, and was dismissed with thanks, "and a great reward withall." Thus says the chronicler, "the worship of the City was kept and not lost for him; and I trust that it never shall, by the grace of God."

There is a long and amusing account in this chronicle of the schism which began in 1465, between the friars and the priests. Sir Harry Parker, a white friar, opened the discussion by blaming the beneficed clergy, and affirming that Christ was a beggar, and had nothing but by way of alms. Dr. William Ive, master of Whittington College, answered the friar, by proving that although Christ was poor and kept no great treasure, yet he was no beggar. The friars were eager to defend their doctrine and set up Dr. Thomas Haldon to answer Dr. Ive. Dr. Storey, parson of All Hallows-the-More, at Paul's Cross, tried to pour oil on the troubled waters, but the friars set up bills on every church-door impugning what he said, and Dr. John Milverton, the prior, attacked the beneficed clergy more bitterly than his subordinates had done before. The laity now took up the dispute, and some refused their alms to the friars, and others discontinued their customary offerings to the clergy. The bishops entered into the fight, after which Parker was committed to prison, and Milverton was excommunicated. The whole matter was set before the Pope, and Dr. Ive drew up a full account of the controversy, the effect of which was that the Pope confirmed all that had been done by the clergy. The Provincial was found guilty in nine more points of heresy, and was locked up fast in the Castle of St. Angelo.

The Dr. William Ive referred to above appears to have been a man of mark, and the chronicler relates a curious passage in his earlier history, when he belonged to Wykeham's College at Winchester. He came to preach before the King (Henry VI.) at Coventry in 1458 at a time when every royal preacher had to show his sermon to a particular official before he delivered it, so that no objectionable passages might be allowed to pass. Ive showed his sermon as usual, but disobeyed the instruction to omit certain parts. He declared from the pulpit before the king that it was the official who had made the sermons previously preached before him and not the preachers themselves, whose purpose had been "all turned upside down." "The great reward that [Ive] had for his labour was the riding of 160 miles in and out, and all his friends full sorry for him."

One of the last entries in the chronicle relates to the Pope's bull against Sunday labour and the absurd fashion of wearing shoes with long pikes at the toes. At this time fairs were held on Sundays, and the dandy's awkward foot-gear was so constantly getting out of order that it was necessary for the shoemakers to be on the spot to set it right; yet here was the Pope forbidding any shoemaker from going to a fair on Sunday, on pain of excommunication. When the bull first arrived the king agreed that it should be put into execution, and be proclaimed from Paul's Cross, but soon there was a universal outcry against it, and fashion conquered the Pope. Some said they would wear long pikes whether he would or no, and others went so far as to affirm that the Pope's curse would not kill a fly, a remark that caused the chronicler to groan and write "God amend this." The Cordwainers, having a vested interest, succeeded in obtaining privy seals and protections from the king so that they might make long pikes with impunity. They also caused the men of their craft who laboured in the cause of the Pope "to be troubled and in great danger."

Such were the men and such was the London of the fifteenth century. It was a well protected city, securely walled, with roads outside the gates leading into the country, which at times were so quiet and rural that hermits took up their residence in localities now teeming with a crowded population. Inside the walls were handsome churches and monasteries, and picturesque houses; crosses and conduits stood in every open space. When the City was in holiday guise ready to receive the king or a new lord mayor, all was gaiety and splendour; but at other times gallows were to be seen in every direction, and heads grinned down upon the passers-by from the gates of London Bridge. Then all the inhabitants of the City formed a homogeneous whole, and the several members of this whole were ready to answer the calls made upon them at any moment. On notice from the mayor the citizens were at once under arms to do their duty; or when priests and friars were jangling, they were listeners ready to take sides. It is from such contemporary writings as we have been noticing that the true photograph of old London life can be obtained.

Birmingham School of Art.—At a meeting of the Committee of the Birmingham School of Art, on the 15th inst., Mr. Edward R. Taylor was elected to the office of head master. Mr Taylor has been the head master of the Lincoln School of Art since its formation in 1863.

THE HOUSEHOLD AT DIFFERENT ERAS.*

THE CÆSARS.

"How shall I admire! How laugh! How rejoice! How exult! when I behold so many proud monarchs and fancied gods groaning in the lowest abyss of darkness; . . . . so many sage philosophers blushing in red-hot flames, with their deluded scholars; so many celebrated poets trembling before the tribunal, not of Minos, but of Christ."—*Tertullian* (about A.D. 198).

In Anno Domini, as it is conventionally accepted, when the Emperor surnamed "Divine" was about sixty-two, Julius Cæsar had been dead nearly forty-four years, Cicero a little more than forty-two, Sallust some thirty-six, Varro perhaps twenty-seven, Virgil less than nineteen, and Horace about eight, years. Ovid was living, but in exile; Strabo had passed the prime of life, Pliny was not born until more than twenty years after; and at the further lapse of a generation Martial and Juvenal were still children. The great fire of Rome occurred A.D. 64, one year after parts of Pompeii and Herculaneum were injured or destroyed by an eruption of Vesuvius; Tacitus and Plutarch were young men when, A.D. 79, the two cities were buried under the ashes of the volcano; and Pliny the Younger was barely eighteen. Much that is known of the early Emperors is due to Suetonius, who, but a youth twenty years after the death of Nero, was a subject of Hadrian, who reigned twenty-one years and died A.D. 138. Suffice it that the century which, for fourteen years, enjoyed the "felicity" of Cæsar-Augustus witnessed, before its close, the "virtue" of Trajan.

In the present state of archæological science it might be supposed difficult, if not impossible, to misunderstand the general character of the Roman habitation, or to misapply with impunity even incomplete and exaggerated allusions to it by Roman authors. But though the world is eminently indebted to archæologists for the collection of much valuable information, there is hardly any new discovery made by them upon which the discoverer, his friends, and opponents, have not built a superstructure of hypotheses. Even staid historians of architecture forget their equanimity when they attempt to describe the "Palace of the Cæsars;" and "The Cæsars," we take it, are Augustus, Tiberius, Caligula, Claudius, and Nero. The "Plan des Fouilles du Palais des Césars," signed "P. Rosa," and dated February, 1870, shows the foundations of more than one large house, of some small houses, of several temples, of a combination of other and different kinds of buildings, together with the remnants of narrow streets. The best-defined remains,—the so-called "Domus Augustana,"—form a block of about 490 ft. by 280 ft., the centre of which is a peristyle measuring some 205 ft. by 190 ft.; and the *tablinum* and *triclinium* are each about 116 ft. by 100 ft. Close to it is a heterogeneous mass of irregular walls to which archæology has given the name of "Domus Tiberiana." The whole "palace," in Mr. Fergusson's words, is "a congeries of shapeless ruins," the superficial area of which he estimates "as a square platform measuring 1,500 ft. by 1,300 ft.;" but he adds, "owing to its deeply indented and irregular outline it hardly covers more ground than the Baths of Caracalla." Presuming, therefore, that these ruins are the foundations of buildings used by the emperors in the first century, it may be taken for certain that the imperial residence grew, as other similar residences have grown at later periods of history. The house of Augustus occupied only a very small portion of the Palatium, or, as it is termed in modern phrase, the Palatine Hill. There, in a street called the "Ox-heads," the emperor was born. After his death the site of his birthplace was covered by a temple dedicated to him, and still standing in the time of Suetonius. The early years of Augustus were passed in a house near the Roman Forum, just above the Ringmakers' Stairs,—stairs which were frequent in the steep and tortuous streets of Rome. He afterwards moved to the Palatium, where he resided in a small house belonging to Hortensius, "no way remarkable for either size or ornament, ... the rooms without anything of marble or fine paving." He continued to use the same bed-chamber, both summer and winter, for many years; and to secure privacy he often shut himself up in a room at the top of his house. "Tiberius during the whole time of his government never erected any noble edifice." Caligula added to the imperial residence on the Palatium, and converted the Temple of Castor and Pollux into a kind of approach to his own house. He also built a bridge,

* See p. 176, *ante*: "Antiquity."

by which he joined the Palatium to the Capitolium, now the Capitoline Hill, where, in the court, he laid the foundations of a new house; and this bridge passed over the temple of Augustus to which we have just alluded. Nero, too, joined the imperial residence to the house and gardens of Mecœnas, situated upon the Esquiline Hill, by a building, which at first was called "The Passage," but after it was burnt down and rebuilt, "The Golden House." This latter, according to Suetonius, "had triple porticos a mile* in length, and a lake, like a sea, surrounded with buildings, which had the appearance of a city." Moreover, in the entrance to this building there was a colossal statue of Nero himself, 120 ft. in height.

A few words as to the great fire. Tacitus says that it broke out in that part of the Circus which is contiguous to the Palatine and the Cœlian Hills. Nero, who was at Antium, did not return to the city until the fire had reached "The Passage"; and it is possible to assume from the description that the whole of the Imperial residence was devoured by the flames. But Suetonius says that, in the fire which occurred in the second year of the reign of Titus, "the buildings and library of Augustus on the Palatine were destroyed"; and that was about seventeen years after the great fire of Nero. Tacitus, continuing his story of the latter, says that four only of the fourteen regions in which Rome was divided remained entire; three were levelled with the ground; and, in the seven others, there were only here and there a few remnants of houses shattered and half consumed. Then Nero, *who died four years after the fire*, rebuilt Rome, as well as that "Golden House" which held his colossal statue,—that statue being twice the height, less 12 ft., of the loftiest house on the Paris boulevards measured from the pavement to the springing of the roof; and the actual height of the three arcaded stories of that vast Amphitheatre which the Vespasians are said to have planted in the very middle of Nero's lake.†

"'What is truth?' said jesting Pilate, and would not stay for an answer," are the opening words of Bacon's first essay, and no one who attempts to study early history from the ruins of buildings can read the ancient descriptions of those extant without putting mentally some such question as the Roman procurator asked of others. Mr. Parker is probably nearer the truth than he often attains in archæological surmise when he says that "the received history of Rome, as taught in all our schools, is founded almost entirely on conjecture." Dureau de la Malle said something similar in better language in his own more epigrammatic tongue:—"C'est que dans l'histoire de la puissance Romaine le merveilleux se trouve être le vrai, la langue des chiffres être plus poétique que celle des orateurs et des poëtes." Figures, as a rule, lose nothing in the hands of a multitude of transcribers, and for that reason should be suspected, even were it not known that the custom of recording numbers by hundreds and thousands is still practised among those nations which retain some of the vices, and may hap some of the virtues, peculiar to antiquity. That column for which a certain Publius gave 116,240*l.*; the 360 marble columns which Scaurus brought to Rome for his wooden theatre, and the biggest of which, 40 ft. high, he placed in the court before his own house; the half-ruined freedman who left more than 4,000 slaves; the friends of Athenæus who possessed from 10,000 to 20,000 slaves; the 32,000*l.* which were expended upon chaplets to adorn the heads of guests at a supper to which Nero was invited: these, and a host of similar statistics, have been gravely turned over and defended by grave historians.‡ But a Roman fiction, the translation of which is happily not often read, presents a likelier description of a large Roman house than has since been composed from the figures of history. Petronius Arbiter is thought by many scholars to have caricatured Nero in his creation of Trimalchio. At any rate, he has told what a pompous freedman,—a *nouveau riche*, ambitious and fluent,—considered a sufficiently extravagant residence for himself, living and dead. "By the favour of Mercury," cries Trimalchio, "I have built me a house. . . . . It has four dining-rooms, twenty bedchambers, two marble porticos, a store-room in the upper story, a chamber in which I sleep myself, a sitting-room for this viper (pointing to Fortunata, his favourite), a capital porter's lodge, and accommodation for a hundred guests." Now Trimalchio had just before enjoined his friends to erect a monument for his ashes which should have a frontage of 100 ft., and a depth of 200 ft.,—the ordinary Roman tomb never exceeding 20 ft. square. Of course great doubts exist as to the period when this satire was written; and some attribute it to a much later time than the reign of Nero; though none have believed it to be antecedent to that emperor.

Cicero has told us that Cneius Octavius, the first of the name who was raised to the Consulship, built a house of noble and majestic appearance on the Palatium;* and that Scaurus demolished this house and annexed the ground to his own dwelling. Cicero said nothing about "a palace," as that term is now used. Mazois, however, to whom we owe the best of the many works on Pompeii and a remarkable Essay on Roman Habitations, wrote a fiction called the "Palais de Scaurus," in which he introduced Cicero's architect, Chrysippus. But there is nothing extant to hint at the possibility even of such a building as that invented by Mazois having occupied a part of the Palatine Hill in the days of Cicero. Mazois put together in imagination, courts, halls, and chambers, in number and dimensions equal to Gibbon's description of a Roman palace in the fifth century, and founded upon the statistics of the Theodosian age. Dézobry, who wrote "Rome au Siècle d'Auguste," in imitation of Barthelemi's justly celebrated "Voyages d'Anacharsis," is equally wild in his plans of a Roman private house. Both Mazois and Dézobry support their hypotheses regarding the archæology of one century by quotations from writers who discourse about another. The first quotes Martial and Juvenal to prove that his conception of Republican splendour and magnificence is exact; and the second founds his idea of Augustan Rome upon words written even centuries after.

Horace's metrical numbers may be deemed as trustworthy as the hyperbole of history. The poet, singing the recurring song of the good old times, contrasted the comparative luxury of his own day with the habits of the past; when, according to Conington's translation,—

> "No colonnade
> For private pleasance wooed the north
> With cool prolixity of shade;
> None might the casual sod disdain
> To roof his home; a tower alone
> At public charge, a sacred fane,
> Were honour'd with the pomp of stone."

That house of Valerius Publicola, which, more than five hundred years before Christ, was pulled down in a single night, doubtless resembled the primitive habitations eulogised by the poet. These were made of reeds and hurdles, covered with clay; and they were roofed with turf, or thatched. The tables of the Roman laws, confirmed by the people about 450 B.C., contain references to streets and houses. The first law of the eighth table is: "Let the space of 2½ ft. of ground be always left between one house and another"; and the seventh law of the same table is: "Roads shall be 8 ft. wide where they run straight, and where they turn, 16 ft." According to Mr. Parker, the Via Appia is only three yards wide at its starting-point, and the Porta della Marina at Pompeii is of exactly the same dimensions. Horace's poetical lamentation over the vast buildings which, while he wrote, were taking whole acres from the plough, is echoed by Strabo. The latter, writing of the city under Augustus, says that, notwithstanding "its prodigious increase," there was "plenty of food, and also of wood and stone, for ceaseless building, rendered necessary by the falling down of houses, and on account of conflagrations, and of the sales which seem never to cease." Then he explains that each owner knocked down and rebuilt one part or another of a house* according to his individual taste, thereby causing all sorts of accidents; and that Augustus, to avert from the city damages of the kind, decreed that all new buildings erected along the public way should not exceed 70 ft. in height,—that is, a little higher than the front wall of the loftiest Parisian tenements. Though these figures may be, and doubtless are, exaggerated, it is certain that the houses were tall and big enough to make Horace exclaim against "Yon pile of buildings approaching near the lofty skies." But the noble edifice on the Palatine, as Mr. Forsyth qualifies it, which Cicero occupied,—and which was built by Livius Drusius, who was killed B.C. 91,—possessed no colonnade or peristyle. "Why," cries Horace, "should I set about a lofty edifice with columns that excite envy, and in the modern taste?" The peristyle was an importation from Greece. Even though Cicero built a part of a villa on the plan of the Athenian Academy, and though, in the time of Augustus, young men of birth and wealth were sent to Athens to complete their education, it is almost certain that the ordinary dwelling-house in the heart of Rome did not take the form it now presents at Pompeii,—a form repeated upon the Marble Plan,—before the great fire which destroyed two-thirds of the city in the reign of Nero.

Vitruvius says:—"The public laws forbid a greater thickness than one foot and a half to be given to walls that abut on a public way; and the other walls, to prevent loss of room, are not built thicker. Now brick walls, unless of the thickness of two or three bricks, at all events of at least one foot and a half, are not fit to carry more than one floor; so that from the great population of the city innumerable houses would be required. Since therefore the area it occupies would not, in such case, contain the number to be accommodated, it became absolutely necessary to gain in height that which could not be obtained on the plan. Thus, by means of stone piers, or walls of burnt bricks, or unsquared stones, which were tied together by the timbers of the several floors, they obtained in the upper story excellent *cœnacula*. The Roman people by thus multiplying the number of stories in their houses are commodiously lodged." He adds that "on account of the narrowness of the streets in Rome walls of brick are not allowed in the city." When, after the great fire, the city, according to Tacitus, was re-formed upon a regular plan, "the streets were made wide and long; the elevation of the houses was defined, with an open area before the doors, and porticos to secure and adorn the front. . . . The springs of water which had been before that time intercepted by individuals for their separate use were no longer suffered to be diverted from their channel. . . . It was also settled that the houses should no longer be contiguous with slight party walls to divide them, but every house was to stand detached and insulated by its own inclosure." Tacitus says that houses were then restricted in height, but he mentions no figures; and the "Satires of Juvenal," written not very many years after, show that the newly-built city, as far as its private habitations went, was not exactly a paradise of order and regularity. Juvenal was "in constant dread of fires, and the perpetual falling in of houses"; and although a certain part of a house was then built of stone or brick, the general mass of it was still wood and plaster.

The foundations and some of the walls of a house, built of *opus reticulatum*, and probably in the first century, were discovered a few years ago upon the Palatine. This house, adjoining the so-called "Domus Tiberiana," has been variously christened by archæologists as the house of Hortensius, which Augustus purchased and occupied; of Livia; of Germanicus; and it will probably receive other designations in the course of time and fresh discovery. The plan of it is shown in fig 1. It may be described as consisting of three parts; one part in which are the shops, S, S, each complete in itself; another part, consisting of rooms surrounding an *atrium*, *a a a a*, which is evidently the private portion; and a third devoted to apartments of ceremony, the *atrium* of which is marked A A A A. A narrow flight of steps leads from the private apartments down to the state *atrium*; and under the former is a basement story. The *tablinum*,

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* A Roman mile was equal to 1,614 English yards.

† When any sceptic ventures to ask how such big buildings were executed in so short a time, the stock answer is, that the Romans could command unlimited labour. But the test of such a supposition lies in the amount of population. Rome, in the reign of Vespasian, A.D. 74, measured a little more than 13 Roman miles in circumference. Dureau de la Malle, after a lifetime of research, says that in the time of Augustus and Nero Rome, "sans les faubourgs," had a population of less than 270,000. Enthusiasts have put it at figures varying from 14 millions to 4 millions of people; but trustworthy authorities have not ventured to think the city ever contained more than 1,200,000 souls; and the Abbé Brottier has shown, from documents extant, that, even in A.D. 360, the population of Rome did not attain that number of inhabitants.

‡ As if in sympathy with ancient writers or their transcribers, Mr. Forsyth, Q.C., M.P., in his "Life of Cicero," talks of Pompeii as "the city which has been disinterred after the lapse of twenty centuries."

* Cicero's words are, "quod præclarum ædificasset in palatio et plenam dignitatis domum," and then "adjunxit ædibus." English translators have used the word "palace" to denote "domum" and "ædibus." The Palatium, in the time of Cicero, contained seven streets, and in that of Augustus was the Palatine region. *Palatinus* means pertaining to the Palatium.

* These were the "insulæ"; houses let by stories or *tabulata*, to which we shall refer in the second and concluding chapter of this section.

the *alæ*, the room T comprise in height both the lower stories of the private portions; and *x*, *y* are bath-rooms. Fresco paintings, said to be undoubtedly of the Augustan age, adorn the state rooms; and upon the walls of the room T are painted the obvious attributes of a Roman dining-room. In the part 1, which we have shown as an *impluvium*, is a staircase, or the remains of one, which led to a wooden upper story; but it is impossible not to think that a staircase in such a position is an adjunct of which the earlier owners were innocent. The rooms B may be described as bed-chambers; or they were used for other purposes by the family; the rest are probably the *cellæ familiaricæ* to which Vitruvius often alludes. The state dining-room T, though of the proportions prescribed by the Roman architect, is remarkably small; and it could not have held more than two sets of divans or *triclinia*.

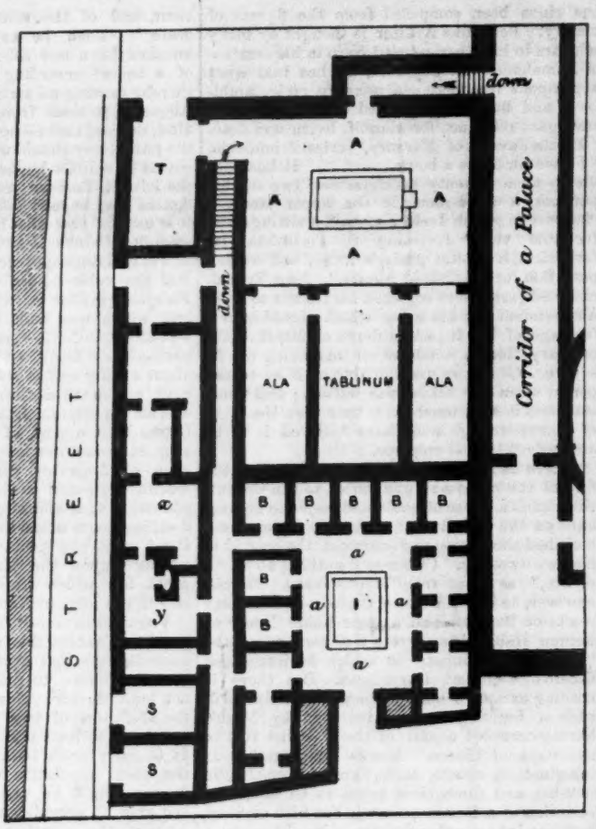

FIG. 1.

SCALE 32nds OF AN INCH TO A FOOT

Our fig. 2 shows an actual residence at Pompeii; and we propose to describe it, not as a particular house, but as one typical of the dwellings in that city. The two shops S, S, were, or could be made a source of profit to the owner, who let them to tenants totally unconnected with the householder living at the back of them. His entrance is through the passage E; and A A A A is his *atrium*, or the public portion of his house. A narrow passage, about 3 ft. wide, is the ordinary means of communication between the *atrium* and the peristyle; for the *tablinum* was closed—at least, on the side of the *atrium*—with folding doors. The little room, or cell, which opens into the *tablinum* is the library. The rooms round the *atrium*, with the exception of the *ala*, are bed-chambers for guests, and under ordinary circumstances they were used by the men. The rooms round the peristyle P, and entered from under the porticos *p p p*, are the *triclinium* T (19 ft. by 18 ft. 6 in.)—which is unusually large compared to similar rooms at Pompeii—and three chambers B, B, B, 12 ft. in height, one of which, to the right of the *tablinum*, is the *thalamus*. The little nook C is the kitchen; and L is a latrine, or a sort of sink, under the stairs. A private postern, at *e*, leads into the side street. Next part of a column, attached to the wall, is a shrine A, dedicated, doubtless, to the Penates. In the centre of the *atrium* is a basin of water, sunk in the floor, called the *impluvium*; and on the side of it, next the entrance E, is a small altar for ordinary religious sacrifice. The *atrium* is covered with a roof over the parts A A A A, thereby leaving an opening to the sky almost as large as the *impluvium*, but so contrived as to permit the rain to drip from the eaves into the basin below. The peristyle is also open to the sky in the part P; the porticos *p p p* are covered with a flat terrace roof, to which access is obtained by the stairs over L; and whence rooms over B, B, B, are entered. There may have been rooms also over the *tablinum* and the room T; but sometimes the two latter rose above the terrace over the porticos *p p p*; and thus obtained additional light and air. The women's bed-chambers are above stairs; and the existence of two staircases favours the idea of a complete division in the upper story between the front and back parts of the house. The stairs approached from the *atrium*, however, led sometimes only to a terrace over the shops S, S, and the passage E. In a few houses there was a story in the roof over the rooms round the *atrium*, and used for stores, or occupied by the slaves. Some of the latter, particularly the *atriensis*, were stationed under or against the *atrium* stairs; opposite to which, in fig. 2, is a long recess, euphoniously called a Roman "cloak-room." In the external wall of the house, commonly styled that of the Tragic

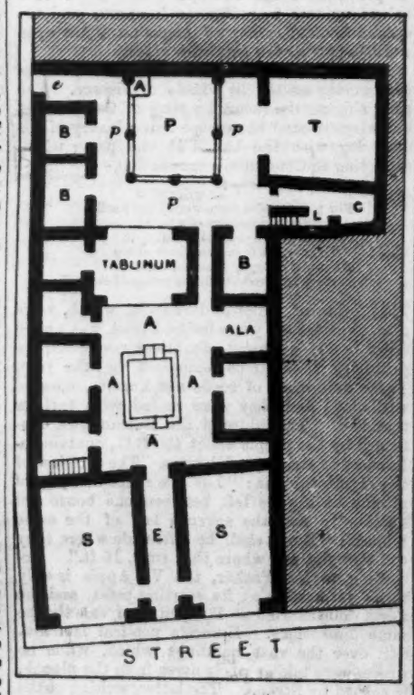

FIG. 2.

SCALE 32nds OF AN INCH TO A FOOT

Poet, at a height of 6 ft. 6 in. from the street-pavement there are window-holes, 3 ft. high by 1 ft. 11 in. wide, which were closed with wooden shutters; and between the columns of the peristyle there was once a railing of either wood or metal. We beg leave to add that the "Pompeiian Court" at the Crystal Palace conveys a false notion of the proportions of those houses it presumably represents. With a depth of 100 ft. its exaggerated frontage is 75 ft.; and the shape of the façade, the central projection of which would occupy two-thirds of an ordinary street in Pompeii, deceives the majority of those who visit it. The *atrium*, some 50 ft. by 35 ft., turned, as far as its shape goes, the wrong way, is out of scale with the rooms around it; and the *tablinum* is colossal.

Our fig. 3 is a fac-simile of a part of the Marble Plan of Rome (third century); and we have chosen this fragment because it combines a variety of things to which allusion has been made by ancient authors in their descriptions of the city. There is a long flight of steps broader than the street itself, but whether they lead up or down the hill it is impossible to say. There are the arcades which, after the fire of Nero, were constructed in front of the shops and houses lining the public way. Indications of stairs, some of them approached directly from the street and arcade, are at *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*. These led to the upper stories, each occupier, according to Niebuhr, being enabled by law to hold a story or flat in absolute ownership; and which he could alienate and transmit. There are also three houses, A, A, A, answering somewhat to the description given by Vitruvius of the Grecian house; and these distinctly show that after the great fire of Nero the principle upon which dwelling-houses were planned in Rome resembled that in vogue at Pompeii.

Becker,* in his attempted restoration of a large dwelling, expended some of his great learning upon arguments about the parts of a Roman house; and much valuable time was wasted in order to show that "cavum ædium" and "atrium" were two, and totally distinct, parts of the house; and that "alæ" were very different things to what they are known to be. Varro says that "cavum ædium" is the name for that place of a certain size, covered with a roof and situated in the interior of the house, which is for everybody's use. According to him, it was also called "Tuscanicum," and also "atrium," from the name of a Tuscan people who introduced it. Vitruvius, or his transcriber, confounds the two names of "cavædium" and "atrium." He describes the *vestibulum*, the *cavædium*, the *peristylia*, as "common rooms" to be entered by all; and immediately after adds, "for a person of middling condition in life magnificent vestibules are not necessary, nor *tablina*, nor *atria*." Thus, to take his description literally, the different parts of fig. 2 might be:—A A A A the *cavædium*, E the *atrium*, and there would be no *ala*. Becker's plan is arranged in accordance with this idea. Mazois says that "cavædium" means only the open and uncovered centre of the "atrium"; and Schneider that only the covered part was called "atrium," and the uncovered part, "cavædium." But surely the Roman, when he talked of his house, as he inevitably did talk when he began to take pains with the plan and construction of it, spoke of his *atrium* as a feudal noble spoke of his hall; though the residence of the latter may have comprised cloisters, courtyards, and dependencies of all kinds. The *atrium* was the common place of assembly. Originally it was so much the house itself as to have held everything belonging to household affairs; the marriage-bed, the hearth and altar, the looms and the ancestral waxen marks. It may be suspected that, in the earlier *atria*, no basin of water occupied the centre. The house was lighted and ventilated by a central hole in the roof, through which smoke issued and light and air entered. The thoughtful arrangement of such a court as A A A A, in fig. 2, is the outcome of gradual refinement. As houses increased in size the hole in the roof got larger; the *atrium* ultimately assumed such dimensions as to be worthy the name of "cavum ædium," or "cavædium," or, as we presume to interpret the word, the hollow part of the house.

It would require too much space to reprint Becker's plan of a large Roman house. Although it is not drawn to any scale, it may be safely assumed that the superficial area of his building is about 210 ft. by 160 ft., without counting an œcus (saloon), which he has managed to project at the back of his conjectural building. His plan is really only devised for the purpose of showing the relative position of the *atrium*, the *alæ*, the *cavædium*, and the *vestibulum*. After having passed the last-named, which is outside the building, and is indeed a recess of the street itself, you enter a porch, 15 by ft. 12 ft., and arrive

* Becker's "Gallus." Fourth edition. Longmans. 1873.

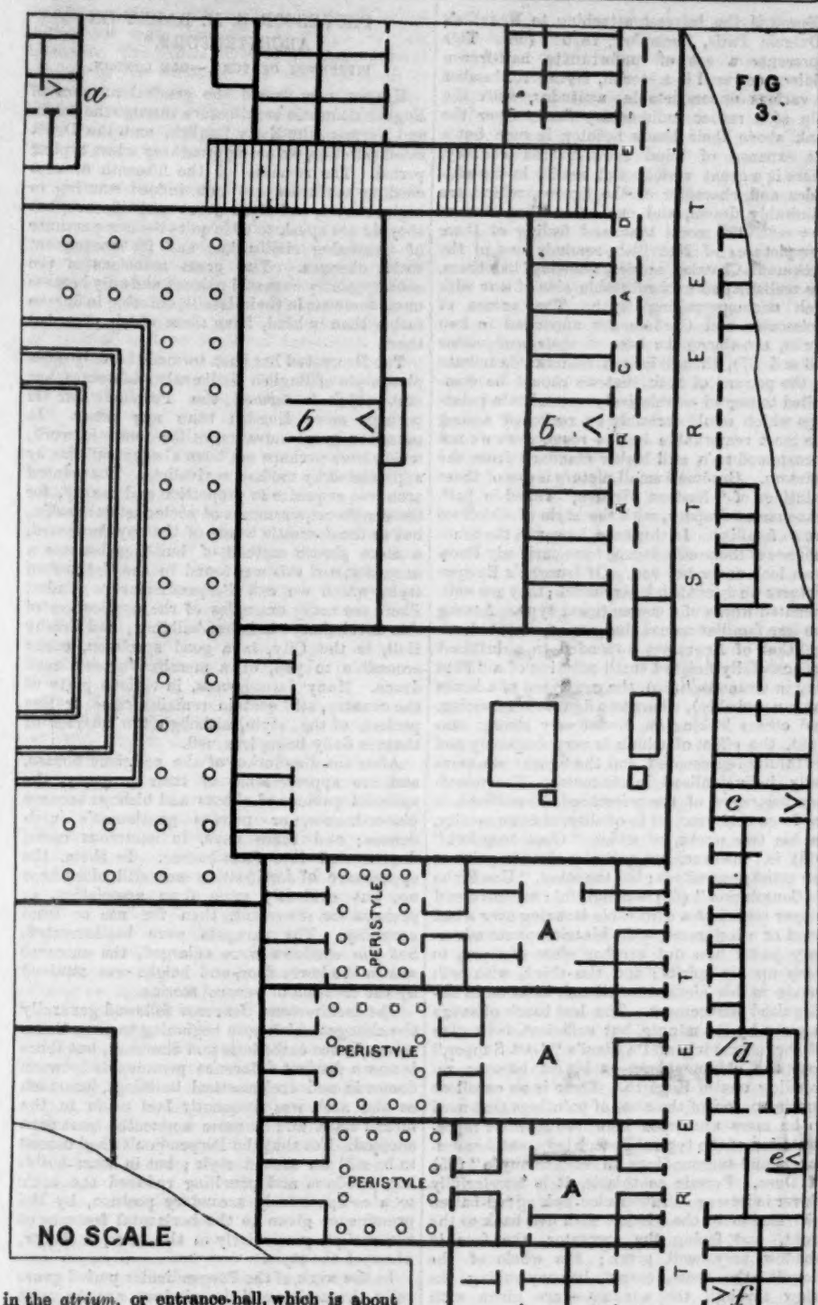

FIG 3.

in the *atrium*, or entrance-hall, which is about 30 ft. by 20 ft. This is flanked on either side by the *alæ*, each 10 ft. wide, lying parallel with the *atrium*, and of the same length. A row of columns separates the entrance-hall from the aisles; and through the latter the two doors into the *cavædium* are approached. In one sense this is opposed to the letter of Vitruvius. The Latin author defines the proportions of an *atrium* thus:—100 ft. by 60 ft. and 75 ft. in height to the underside of the beams supporting the roof; or 30 ft. by 20 ft., and 22 ft. 6 in. in height. When the *atrium* is 30 ft. by 20 ft., the width of the *alæ*, on either side of it, is 10 ft., and their height, according to the Roman architect, is to be equal to their width: thus the order of columns in Becker's plan would be only 10 ft. high from the floor to the bottom of the lintel. Yet Becker says, exultingly, "We now see why the breadth of the *alæ* was fixed in proportion to the length of the *atrium*: the edifice was similarly constructed to many of our churches, which are divided into a large nave and two aisles." No doubt the aisles of a basilica were called "alæ," but neither the houses of Pompeii nor of the Marble Plan show any *alæ* or *atria*, like those invented by Becker; and his German editor, whose notes, in tiresome reiteration, are mixed up with the original text, admits the fact. In fig. 2, where it will be seen the *atrium* is about 30 ft. by 20 ft., the *ala* is a third of the length; and in the House of Pansa, where the *atrium* is 50 ft. long, the *alæ*, in accordance with the rule of Vitruvius, are about a fourth of the length. The long dispute concerning the different parts of a Roman house might be sustained with almost equal chance of inevitable contradiction, in the matter of "triclinium" and "cœus." Vitruvius devotes a chapter to the description of both, and another to the Grecian *œci*. He says the length of a *triclinium* is to be double its breadth; and, in fig 1, the room T, as we have already said, is so proportioned. But at Pompeii the *triclinium* is usually square. The summer *triclinium* in the house of Sallust is 13 ft. square, and is therefore entirely filled with the three divans (of masonry found *in situ*), and the small centre table. In the House of Pansa the great *œcus* is about 34 ft. by 24 ft., with wide openings at each extremity; and through the door into the passage leading to the kitchen, the service could have been easily performed if the divans were placed as Vitruvius says they ought to be arranged. In this *œcus* there is space for two *triclinia*, that is to say, for two small circular tables, round each of which, on three sides, three divans were placed. Each divan held three persons; and therefore the Grecian *œcus* or the guests' *triclinium* in the House of Pansa, one of the largest in Pompeii, could accommodate eighteen persons.

In "The Habitations of Man in all Ages," M. Viollet-le-Duc has given an imaginary plan of a villa on the Via Appia, not far from the city; and, as he distinctly says, its owner is a rich patrician in the reign of Augustus. Now, Mazois attempted to restore upon paper the ruins of a villa, certainly not anterior to Augustus, near Roma Vecchia, on the road to Frascati; and enough remained, besides the walls of two staircases, to show what the proportions of the *atrium*, peristyle, and some surrounding rooms, were. They are all eminently small. The staircases are not wider than those in the houses of Pompeii; and, in that city, the pseudo-urban villa, though it covers a large extent of land, is small in its details. The diameter of its pretty circular bedroom is about 16 ft.; and a part of the circle is engrossed by an alcove for the bed. Its Grecian *œcus* is about 32 ft. by 24 ft., and the *tablinum* is not much more than 16 ft. by 15 ft. At Herculaneum, a library, said, of course with the usual exaggeration, to have held more than a thousand rolls of MSS., is known to be just large enough for an ordinary man, standing in the middle of it, to touch the sides when his arms are extended. The Roman orator's remark that a house without books was like a body without a soul is probably at the bottom of the wild theories that have been vented concerning the Roman library. That shown in M. Viollet-le-Duc's villa is bigger than the *atrium* of our Pompeian house (fig. 2); and his bookcases are built in masonry against the sides of the walls. But it is almost certain that a framework of wood, placed in the centre of the room, held the MSS. whose gay bindings pleased the sight of Cicero,—and, for a hundred years after at least, the library was simply a receptacle for books, not a place in which to read them. The French author is as grandiose in his conception of a Roman villa in the time of Augustus as he is of a Grecian house in the time of Demosthenes. His vestibule is covered, and leads into a passage, on one side of which is the porter's lodge, 12 ft. by 12 ft.; and on the other is a "parloir" of equal size, within which those who are waiting to enter the *atrium* are to be accommodated. The latter is 37 ft. by 22 ft.; the opening in its roof is of the strange dimensions of 21 ft. by 6 ft.; and this small opening is surrounded by eight columns. From the *atrium* you enter immediately into the peristyle, or, as M. Viollet-le-Duc calls it, the grand "Impluvium"; and this courtyard, about 85 ft. by 55 ft., is surrounded by a colonnade. His *impluvium* itself is a fountain, the basin of which is about 10 ft. square. No *tablinum* is introduced, no *alæ* are shown; but a *salle de réunion*, round, vaulted, and some 23 ft. in diameter, is approached from the colonnade of the peristyle. Hardly a shred of trustworthy authority warrants such a distribution of rooms. The description and view he has published of the *triclinium* are opposed to evidence extant. He has shown three divans, intended for nine persons only, in a dining-room about 33 ft. by 33 ft., and each divan is about 13 ft. long by 6 ft. wide; yet he says from fifteen to eighteen guests are to be entertained upon them. In fine, M. Viollet-le-Duc's amusing inference that the bronze trellis-work, by which the upper portions of doorways were sometimes protected,—generally in temples and public buildings,—was filled with coloured glass, shows to what extent an author, who has made a name in the pursuit of Mediæval precedents, can trespass upon public credulity.

FRENCH AND FLEMISH EXHIBITION.

THERE is in the Annual Exhibition at Mr. Wallis's Gallery, which opened on Monday, a certain proportion of the sensational and vulgar art which has unfortunately of late been admitted into an exhibition which used to be remarkably free from those characteristics; but in the main this year's collection is a strong one, and contains some items of special interest. Among the pictures of the class we have reprobated are such as the large weak painting called "Le Premier Pas" by Vely (22), the "Excursion" of Raffaelli (143), "Alone in the Studio" by Palmaroli (177); the two latter of which are simply vulgar, and there are others coming more or less under the same category. These artists are comparatively new-comers in this gallery, and their works have done it little good. Madrazo's small painting, or rather sketch, of a group "On

the Sea Shore" (2), however, is redeemed from coming under this category by its exceeding artistic cleverness in the representation of the pose and style of the figures (the girl reclined on the sand especially) and the truthfulness of tone in shore and water; for the artist's other picture, "The Album" (55), no excuse can be made except by those who like coloured photographs, life-size. We commented on this artist's remarkable cleverness and original style when his works first appeared in the gallery; but there is no advance on what then appear to show great promise, and he seems deliberately and studiously to select the most odious types of men and women for representation. On the other hand, another painter, still young, and comparatively a new exhibitor here, has made a great step this year in his largest work, "An Auction Sale" (188). In this work, the painter, Herr Kauffmann, shows us the scene at a sale of the stock and furniture of some village householder, the buyers being grouped partly under a large shed, the roof of which throws a number of them into shadow, and partly in the open air, the groups in front being in full light. The picture is crowded with figures, every one of which has its own specialty of character, expression, and relation to what is going on,—in many instances too numerous and varied for description here; we have seldom seen a picture of this type which would better bear looking into and studying. The same artist has some smaller works, of which "The Blind Fiddler" (49), playing to a tavern audience of three boors, who look more blind and stupified than himself, is a most complete little work, though a very melancholy one. Of the other pictures of this stamp is a very able but not pleasant work by Knaus, "Auf Schlechtem Wege" (73), representing peasants gambling, the wife of one of them trying to get him away before he loses everything; there is much character in the four men, each of whom is a type in his way, and the representation of the thick neck and puffed red cheek of the old fellow nearest, and with his back to the spectator, is remarkably successful. Among the works of A. Spring, another young painter, a group of mother and children and an old priest, under the title "Good Advice" (37) is the best, and is very admirable in its broad yet careful handling and minute study of attitude and character; and a little painting close to this, "The Orphans" (38), by Sadès, representing three peasant children gazing on the sea, is a little bit of true pathos, rather in the manner of Israels. This latter artist is represented by a work less serious in tone than is usual with him, a set of children sailing boats on a pond on the seashore (57); it is remarkably full of light and air.

Jules Breton has a painting about which there is likely to be some controversy in regard to its tone of colour, "The End of the Day" (170), a scene in the fields, just before twilight comes on. A group of peasant women and girls are resting after their labours. One strong lass, a very characteristic figure, lies at full length on the grass, looking up at the others. The tones of the landscape are peculiar, and have a very different effect under different lights and at different times of the day; but we believe the effect is the result of true observation, and conveys, with considerable subtlety and delicacy, the uncertain tones of evening light. The artist's follower, Billet, exhibits two single figures, apparently painted from the same model, "Resting on the Way" (36) and "Weary Waiting" (107); the latter a peasant-girl seated on a boulder in the foreground of a waste rocky shore, leaning on an empty basket, shows the most of sentiment and feeling, though not so effective in colour as the other. Then there is a remarkable little painting by the late J. F. Millet, "L'Amour Vainqueur" (160), in which his peculiar feeling for peasant life is half-translated, as it were, into a classic form: a half-nude girl, completely realistic in type, is drawn and hustled by a set of little naked boys, some of whom tug at the drapery which half-covers her form; the boys are realistic, too, in type, yet the whole is removed from actual realism by the dim half-lights in which the figures are placed, and the broad and grand manner of the drawing. It is a most curious instance of the unison of two opposite types of art in the same painting.

Leroux's large painting of the "Burial of Themistocles" does not interest us; it is flat and tame in colour, and unreal in effect. The artist, we may observe, has made his monumental columns in the distance so out of the perpendicular as to be painful to the eye. How different is the interest attaching to Neuville's "Outside Paris, December, 1870" (56). This represents a set of unfortunate half-frozen soldiers, cowered in a trench, trying to slumber in various uncomfortable attitudes, with the help of a rather rudimentary fire. Over the bank above their heads nothing is seen but a flat expanse of blind snow-covered country. There is a great variety and reality in the attitudes and character of the figures, which are admirably drawn, and one cannot but observe how much the moral tone and feeling of these war-pictures of Neuville's reminds one of the Erckmann-Chatrian stories, showing, like them, the realistic and uncomfortable side of war with such uncompromising truth. The names of Meissonier and Gerôme are appended to two works, not among the best of their productions (68 and 87), though it is a remarkable tribute to the powers of both that we should be compelled to regard as relatively second-rate paintings which would certainly be reckoned among the most remarkable in the room, were we not accustomed to a still higher standard from the painters. Gerôme's small picture is one of those paintings of "Eastern Women," veiled in half-transparent drapery, with the style of which we are so familiar. In this case, however, the countenance of the pretty damsel has a curiously European look under her veil. Of Lazerge's Eastern pictures we do not think very much; they are well-executed works of a conventional type. Among the less familiar names that are represented, we find that of Aggrassot appended to a brilliant and carefully-finished small painting of a "Fête Day in Granada" (35), the courtyard of a house (an inn probably), where two figures are dancing, and others looking on, under very strong sunlight, the effect of which is very delicately and truthfully represented, and the figures are carefully individualised in character. The relentless portrayer of the priesthood, Chevilliard, is in force this year, as to quality, if not quantity, in his two works, of which "C'est trop fort" (43) is, however, not quite so clear in point as the artist generally is; but the other, "Une Fiche de Consolation" (69) is delightful: one reverend player seated at a card-table is raving over a bad hand or a lost game, while his triumphant adversary pours him out another glass of sherry to keep up his spirits; and the third, with both hands in his clerical waistband, looks on in undisguised amusement. The last touch of satire is given by the minute, but sufficient, indication of the engraving of Da Vinci's "Last Supper," over the chimneypiece,—a bit of humour reminding one of Hogarth. There is an excellent specimen, too, of the class of paintings that used to be more numerous here, the realistic representation of the typical French lady, and her costumes and surroundings, in the "Ennuyée" (65) of Duez. Prosaic as this is, it is wonderfully clever in its way: a rather nice-looking red-haired girl stands in the window with her back to the light, and facing the spectator, the face in shadow very well given; the whole of the details—the dress, carpet, balcony-railing, the view through the window—are given with perfect truth, and a refinement of realism is obtained in the manner in which one half of the landscape is painted as seen through the open casement, and the other half through the glass; as an optical illusion it is almost perfection, though the end may not be worth the means. Another piece of admirably clever work is to be noted in Beyle's "Déjeûner" (185), especially the drawing of the silk-stockinged leg of the dandy, which is rested on a chair before him. We were nearly forgetting one of the best pieces of humour, as well as painting, in the room, Vibert's "Probationary Sermon" (8), where, in a richly-furnished room, a monk is going through a test sermon before a higher ecclesiastic, who looks on with grave criticism as the preacher goes somewhat vulgarly through all the action of earnest appeal to an imaginary congregation; the satire of this is more cutting even than Chevilliard's, because more serious.

Some sketches of Fortuny, lent by the artist's widow, have an interest, and have brilliant points, though in a style we by no means admire. In landscape, the exhibition is not strong; the names of Dupré, Daubigny, and Corot are there, but not their genius; one or two landscapes by Gabriel are among the best, and there is one snow-piece by Munthe, "Winter in Holland" (60), in which the artist has really surpassed himself in this way; it is seldom one sees a work combining so much poetic feeling with such absolutely real effect.

PROFESSOR E. M. BARRY ON ARCHITECTURE.*

FIFTEENTH CENTURY.—OLD LONDON.

HAVING now traced the gradual advance of English domestic architecture through the Saxon and Norman, the Early English, and the Decorated varieties, we are approaching a less typical period. The remains of the fifteenth or succeeding centuries are not indeed wanting in high interest, and often great magnificence, but they do not speak to us in quite the same manner of increasing civilisation, and its consequent social changes. The great mansions of the country gentry were still palaces, and only became more domestic in their details, differing in degree rather than in kind, from those which preceded them.

The Decorated has been termed the only complete style of English Mediæval architecture, but that which is termed the Perpendicular is perhaps more English than any other. It possesses great advantages for domestic work, which have perhaps not been always sufficiently appreciated by modern revivalists. The pointed arch was exquisite in proportion and beauty, for the simple requirements of ecclesiastical design, but as the domestic wants of the day increased, a more plastic method of building became a necessity, and this was found in the flat-arched style, which we call Perpendicular or Tudor. There are many examples of the application of this development in house-building; and Crosby Hall, in the City, is a good specimen, easily accessible to you, of a merchant's town residence. Many farm-houses, in various parts of the country, still contain remains, more or less perfect, of the style, although the number of them is daily being lessened.

After the dissolution of the religious houses, and the appropriation of their property, the splendid palaces of abbots and bishops became manor-houses, or private gentlemen's residences; and these have, in numerous cases, degenerated into farm-houses. In them, the appearance of fortification was still often kept up, but evidently more from association, or perhaps for ornament, than for use or from necessity. The parapets were battlemented, but the windows were enlarged, the entrance was in the lower floor, and height was attained by the erection of several stories.

The architectural features followed generally the changes which were beginning to show themselves in the cathedrals and churches, but there is now a distinct difference perceivable between domestic and ecclesiastical buildings, inasmuch as the arch was frequently laid aside in the former class, and a more horizontal treatment adopted. Not that the Perpendicular had ceased to be still an arched style; but in house-building, windows and panelling reduced the arch to a comparatively secondary position, by the prominence given to the horizontal features of the design, particularly in the later, or Tudor, phase of the style.

In the work of the Perpendicular period generally, the arches and the windows are the most characteristic details, or at least those which will strike first the ordinary observer. The pointed arch had given way to the depressed, or four-centred form, which is known among us as the Tudor arch. Introduced gradually, this feature became at last almost universally used. In doorways it was framed in, as it were, by the label or dripstone, which had become an enlarged and more important feature than before. Hitherto the label followed the curve of the arch, and served as a protection to it. It now frequently formed a square head over the arch, with spandrels filled with tracery or carving. The ogee form also, which was sparingly used in the preceding style, became a favourite feature, and was used freely, with crockets and finials, often richly carved. The arches, in fact, now assumed a greater variety of form than at any previous period.

The windows were large, with numerous lights, and, as a rule, when of considerable height, divided by horizontal transoms. The heads were filled with tracery, as before, but the character of the latter was altered. The circles, quatrefoils, and the like, as well as the more flowing patterns, had disappeared, and perpendicular lines prevailed. In some instances these ran from the sill to the arch, the curves of which were generally reproduced in the minor divisions of the tracery, and in all cases the windows exhibited the prevalence of vertical lines. Another peculiarity of the time was the plentiful

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use of panelling. The surfaces of the walls and buttresses were profusely decorated in this manner. The panels followed the same general design as the windows, and many of them in consequence appear like windows blocked up. They were often subdivided, again and again, till they became crowded, and very elaborate, as you may see at Henry VII.'s Chapel at Westminster.

The mouldings are few and shallow, very different from the varied, deeply-cut, and richly-ornamented clusters of previous styles; and the carving is of a less varied and interesting character. The rose of the Tudors is frequently introduced, as well as the portcullis of Henry VII., and the oak and strawberry leaves became favourite ornaments, carved in a mixed spirit of natural and conventional treatment. Pinnacles and turrets were common, and the latter assumed the ogee form of roof which we see at King's College Chapel, Cambridge, and at Henry VII.'s Chapel at Westminster. Towers were built of great magnificence, as at St. Mary's, Taunton, and roofs became lower of pitch, and surrounded by parapets, battlemented, panelled, or both.

Roofs were constructed of wood, often richly carved and ornamented with bosses, and the peculiar system of vaulting known as fan-groining was used in important structures, as for example, in the two chapels I have just mentioned, and at St. George's, Windsor. This method of design is distinctively English, and has special beauties, although I think it cannot be said to rival the earlier vaults for purity and severity of style.

The Perpendicular style, in fact, was losing these qualities in all its details, which were conceived in a spirit rather of freedom and exuberance than in that of dignity and lofty elevation. In its application to domestic work it was more successful than in other cases. Here freedom stood it in good stead, and gave to it a susceptibility for decoration which fitted it for any amount of magnificence that might be desired. At the same time the simplicity of the mouldings reduced necessary outlay. Thus, there was found no difficulty in applying Tudor forms to every variety of building, from the castle or palace to the farm-house. The castle, indeed, in the stricter application of the word, was becoming an anachronism, and castellated peculiarities inconvenient. Old customs and precedents, however, still dictated the plans of buildings and the distribution of their adjuncts. The fortifications were abandoned, or became mere architectural ornaments; the walls of enclosure, within which might be gathered hosts of retainers, soldiers, or tenants, were no longer necessary. These outer boundaries, therefore, ceased to be built or maintained; but the inner buildings were still erected as before, with the hall as a central feature, around which the other apartments were grouped.

Changes arose in this arrangement, as time went on, until the hall lost its importance and became merged in the general mass of the building, as in many existing Elizabethan and Jacobean examples. Until now, the hall was the chief part of the whole building, to which it gave its name, and it was the result of feudal customs which were in course of gradual modification. The great landowner lived here in state, with his dependents gathered around him, all of whom lived at his expense, and looked to his table for their support. After the feast, when the lord and his family withdrew to the solar, or private withdrawing room, the hall gave shelter to his vassals, by night, as by day. They were not in a position to be exacting, having few rights which they could enforce against their lord, and being wholly dependent on his pleasure. The hall was at once the symbol of his state, and of their subjection.

We may thus understand that the decline in the importance of the hall marked an important epoch in English social life. It was indeed no less than the gradual enfranchisement of whole classes. Even the labourers began to live in houses of their own, or at least as tenants of their lord; and there arose also that great middle class, which has done so much for England, by standing between the Crown and aristocracy on the one hand, and the people on the other; and has thus powerfully influenced our history to the present day. These changes in society soon affected architecture. When there were no longer large numbers of dependents living in the hall, the size and importance of the latter might naturally be diminished, and instead of being almost the house itself, it shrank into a part of the whole, as an accessory, more or less distinct according to circumstances.

Meanwhile, the other rooms of the manor-house gained in importance. More refined manners demanded consideration. The hall could no longer be allowed to be used for sleeping in at night, and private bedrooms and dormitories were constructed in the larger houses or "halls." A common dormitory had long been a familiar arrangement in monastic buildings, and the beds in it were often divided by curtains or boarded partitions. Similar rooms were now placed in the upper stories for the use of servants or guests. Private bedrooms were at the same time multiplied, until they became as important as any other parts of the structure. In later times, indeed, they were decorated with much splendour, and we find to this day some of the most elaborate plaster ceilings of Elizabethan design in the bedrooms of the great houses of that period. Beds with drapery became customary, though they were still often made up on the floor, and placed two or three in a room. They were taken about from place to place, and it was incumbent on a servant to find his own bed.

Formerly, the servants in the castle of a great landlord included mechanics of all trades required for the building or maintenance of the structure. There were hosts of armourers, carpenters, masons, smiths, &c., as well as butchers, bakers, and the like. This circumstance will explain the necessity for the numerous buildings which clustered around the castle, and were protected by its enclosing walls. The custom lingered, but gave way before the increasing importance of the industrial arts, and the rise of the guilds and companies of traders to which I have before referred.

The increase of commerce not only led directly to wealth and national prosperity, but it indirectly softened the manners of a rough and hardy people, by acquainting them with the ways and experience of foreign countries. The trading classes were daily gaining in power, both social and political, and not only France and the low countries, but even India and the East, began to pour their treasures into London and the larger towns, which accordingly began to assume a corresponding importance. It was, doubtless, a distinct advance for the peasant to obtain a roof of his own, although of the humblest nature. Like most of the minor buildings of the time, his house was constructed of wood, with a thatched roof, and too often a single room served for all purposes. Many of the timber houses which we still find in Kent and other counties, were obviously intended for the use of persons above the rank of a labourer, such as yeomen or small farmers.

As roads were still bad, and communication difficult, there was little inducement for the workmen to go far for materials, and both in the country and in the towns, wood was still commonly used for house-building. Our ancestors were famous for their carpentry, and their fine church-roofs are unrivalled. In house-building, they showed the same skill, combined with much taste for the picturesque. The walls were formed of timbers, and the spaces between them were commonly filled in with plaster, which contrasted agreeably with the colour of the wood. In some counties, as Lancashire and Cheshire, these old timber buildings still abound, and are usually called "Halls," a relic of the old fashion. In these cases, the wood has usually been painted black, and the contrast with the white plaster is, I think, rather startling than pleasant.

In town houses, the wood-work was often richly carved, and some of the projecting corbels and roofs are of great beauty. Supports or "spurs" abound at the sides of doorways, and helped to sustain the upper stories, which, according to the fashion of the time, projected beyond the line of the wall below. The ground-story was often of brick or stone, while the upper parts of the house were made of timber and plaster. We may judge of the beauty to which such architecture might attain by the remains of timber-work which exist at Bury St. Edmund's, York, Chester, Coventry, Shrewsbury, and elsewhere, and we may be sure that London, with its rapidly increasing trade and wealth, was in no way inferior to such cities. It is, therefore, a grave artistic misfortune for us that the Great Fire of London should have destroyed almost every vestige of Mediæval domestic woodwork in the capital.

From the upper part of each house projected the sign, which served the purpose of the modern plate-glass window and the name in gilt letters. There was no great display in shop-windows in those days. The stock exposed for view was not large, and shopping was carried on under difficulties, as may be seen in the caricature before you of shopping in St. Paul's Churchyard. The openings were of moderate size, usually closed with shutters, and sometimes, as in Cheapside, the shops were little better than sheds, one story high, built against the main walls of the house, to which they were attached. The sign was, therefore, of importance, and some of them linger, as we know, to the present day, such as the barber's pole and basin; the pawnbroker's three balls; and the bush for an inn where wine may be had. When the latter is good, however, the old saw declares that it "needs no bush," for as its virtues cannot be hidden, they require no proclamation.

The signs must have had their inconveniences in the narrow streets, to which, however, they added a quaint picturesqueness of effect, in keeping with the architecture of the day. If they were a source of possible danger, from their tendency to fall on the heads of wayfarers, they were not likely, at any rate, to cause such serious accidents as the telegraph wires, which have lately been permitted by supine authorities to span our busiest thoroughfares, and to add new dangers to the streets.

A taste for the picturesque has always marked the works of English Mediæval designers, and has distinguished their work from the more stately and regular manner which found favour in France. The difference is doubtless connected with the varying taste of the two nations to which I have before referred,—the one loving the town, and the other delighting to make their homes in the country.

We have now arrived at a period of English history when our domestic Mediæval architecture had advanced to its highest perfection. The plans and arrangement of the houses had been enlarged and complicated to meet the advancing requirements of civilisation. At the same time, the changes had been gradual, and old fashions still prevailed and affected architectural forms. The country was still the home of the great lords of the soil; but palaces, both episcopal and lay, were arising in the large towns.

The chapel was still an essential part of a gentleman's house, although the eventual disuse of it might be foreseen, from the restrictions which were laid upon the services celebrated within it. Castles, with their battlemented towers and lofty gatehouses, yet remained, and were even built or added to; but they were the signs of a state of society now rapidly passing away.

The time was ripe for change, and it was soon to come, introducing new ideas into the religious and social life of the day, and consequently affecting architecture in the highest degree. One of the most frequent signs of the times was the rise in importance of the great towns, closely connected as this was with the elevation of classes at which I have already glanced.

Having hitherto drawn most of my illustrations from the country, I now propose to give some consideration to town houses, and particularly to those of Old London. The changes in the great country-houses which were introduced after the disuse of Gothic architecture, and which constitute what may be roughly termed "Elizabethan," possess great interest and importance; but I pass these over for the moment, as I may possibly take another opportunity of speaking about them.

During the reign of Edward I., a remarkable series of towns were founded by the king,—not only in England, but also in his French possessions. The latter became known as the "English towns," and were termed "Bastides," in the French dialect of the district. They are remarkable for a regularity of disposition which we are little apt to associate with Mediæval work. The streets are straight and regular; they cross each other at right angles; and the buildings are planned in regular blocks. The general aspect of the plan resembles, very nearly, the arrangement adopted in the modern cities of the United States. Although these towns are called in France the "English towns," it is possible that this title was given to them in compliment to the English king who founded them, and that the original conception may be due to France.

However this may be, they were carried out by English instigation and by English agency; for there is a letter extant from King Edward, while abroad, in which he desires that four proper persons are to be sent out at once from England to carry out his wishes. The letter was written at Bordeaux, and was addressed to London. In it the king especially declares that the per-

sons sent are to be "the most clever and able, and those who best know how to divide, order, and arrange a new town, in the manner that will be most beneficial for us, and for the merchants, and who shall be ready and willing to go for that purpose, wherever we may send them."

The plan of Montpazier, in the province of Aquitaine, is one of the most regular of the "English towns" abroad, and in England, Winchelsea was founded at the same time, and with similar objects. The market-place was in a central position, with arcades or cloisters round it. Near it was the church, with an open space for processions. The whole was surrounded by walls, with the usual gateways and towers.

The king showed great favour to these places, which became also known as "Free Towns." The inhabitants were released from all allegiance to the neighbouring lords, and held their property direct from the Crown. Trade being made free, they were enabled to carry on an extensive commerce, and as they became rich and powerful, they constituted a check upon the power of the bishops and nobles, and laid the foundations of municipal freedom. As their liberties excited jealousy, it was prudent that means of defence should be provided; hence the necessity of walls and ramparts. In times of danger, the most valuable property was placed in the church, and in some French towns the church was consequently fortified, as at Etampes and Dol, in Brittany, and also in the South.

The towns were founded by the king as a counterpoise to the power of his great feudal vassals, and they furnish a remarkable proof of the far-sighted wisdom of his policy. Strict orders were given that no one should be allowed to build a castle or fortress in the district attached to each town, in order that their independence might be preserved. Fostered by royal care, and thus favoured by privileges, the new cities grew and prospered, and became known as new or free towns, or in French, *ville neuf*, and *ville franche*. In England the buildings do not appear to have been quite so regular in their plans as in the French examples. At Winchelsea and Hull, both of which places were founded by King Edward, the sites presented peculiarities which doubtless account for such variance. There is, nevertheless, sufficient regularity in the distribution of the streets and blocks of houses to indicate the model on which they are based.

Hull was personally founded by the king, who saw the importance of its position, both as regards the possibility of invasion from abroad, and the commerce for which it was fitted. The land belonged to the church, but an exchange was effected, and the king lost no time in urging on the building of the town, to which he gave the name of King's Town, or Kingston, as it is still called. It has been more fortunate in after times than the sister town of Winchelsea.

The latter was placed on a new site, after repeated encroachments by the sea had almost destroyed the previous village or hamlet. The king or his advisers had formed large ideas of the ultimate importance of Winchelsea; but these were destined to disappointment, and the work was never finished. There is a fine church, partially completed, with a series of tombs, which indicate the fallen fortunes of the city. Within the first twenty years it was twice taken and pillaged; once by the French, and secondly by Spaniards, and from these calamities it never recovered. The walls, if built, have disappeared; but three gates remain, with segmental arches, and plain details. Some remains of the original houses may still be traced, and also parts of the vaulted cellars which formed their substructure. This mode of building was common at the time, but it has been thought that the vaults at Winchelsea were specially designed as depots for wine, as the French wine trade was even then considerable, and the position of Winchelsea was convenient for its prosecution.

The establishment of towns, and the privileges granted to the citizens, had a great influence upon the various trades carried on by the latter, and certain places became the head-quarters of particular industries. Thus the woollen trade flourished at Northampton, while Norwich was famous for worsted, Totnes for its clothing, and Beverley and Lincoln for their dyes, "Lincoln green" having a traditional fame. As the various trades prospered, the traders naturally associated, and made rules for their common guidance. From such circumstances arose the guilds, and among the first of these societies in England appear to have been the Weavers', the Goldsmiths', the Fullers', and the Tanners' guilds. The members agreed to contribute to a general purse for common objects, and hence the derivation of "guild" from the Saxon word "gildan," to pay, or contribute.

The guilds were not, however, confined to trading societies; some were political, and became incorporated, by royal permission, for the local government of their towns, while others formed religious confraternities, devoted to purposes of charity, and mutual help. The trade societies are those which are now best known to us, as they still exist, although under different conditions from those which dictated their establishment.

The houses which were erected by the guilds, for the purposes of their societies, were among the chief architectural ornaments of Mediæval towns. Few, if any, remain in their original condition in England, although there are splendid examples abroad, as the Cloth Hall at Ypres.

The Guildhall in London is well known to you, and may serve to give some idea of the scale of such buildings, although its architecture has been too seriously interfered with to allow us to regard it as a perfect example. The Guildhall was the great common hall of the citizens, used, very much as it is now, for public purposes, under the authority of the Lord Mayor; each trade, or guild, having its own separate hall and premises, like the various City companies,—their descendants,—at the present time.

In less important towns than London, the Guildhall of the ruling trade served also as the town-hall, or hôtel de ville, for the general public business of the citizens. In such cases, a tower, with a belfry, was usually an adjunct. The liberty to erect such a tower was one of the privileges of the chartered towns, and was prized by the citizens, as the outward sign of their independence.

The towers and belfries in the towns of Belgium are among the finest structures of this kind, and their chimes have always been famous. It is recorded of Laon, in France, that the king, Philip VI., wishing to mark his displeasure with the citizens, ordered their bells to be sold, and directed that the tower should no longer be called the belfry.

Near to the town-hall was the market cross, a common and interesting object in English towns of any magnitude. They have been in many cases retained, and even restored; as, for instance, at Chichester, where there is a fine example, with a space around it for a butter-market. Some of these crosses served also as conduits, and at Lincoln there are remains of a reservoir, such as might supply a fountain, a feature unusual in this country, though well known abroad. In such towns the cross was placed at the point of intersection of the four pricipal streets.

The outer ends of the main streets were closed by gates, consisting usually of an archway, with flanking turrets. As the towns expanded, these gates were removed as obstructions, but their names often remain, as in London, where we are familiar with Aldgate, Bishopsgate, Ludgate, Billingsgate, &c. The last landmark of this kind in London, Temple Bar, is already doomed, and I have therefore placed before you a view of it as it now exists, and also as it was before the Fire.

The streets leading from the principal gates were usually of good width, although the cross-lanes and alleys were narrow, and further contracted by the overhanging of the houses. The latter were now frequently ornamented, not only by carving on the wooden framework, but also by enriched plaster between the uprights, a mode of decoration more common, however, in Germany and France than in England.

With these general ideas of the usual arrangement of Mediæval cities, let us now direct our attention to London, and consider, as far as our imperfect information enables us to do so, what was its appearance previously to the Great Fire of A.D. 1666, which robbed it of so much of its historical interest.

We do not know when London was first founded, but there is little doubt that even when the Romans left Britain it was a place of importance, and it was called Lundinium by Tacitus and others. This name has been considered by some antiquaries to have arisen from a mixture of Roman and Celtic titles. A Temple of Diana is believed to have stood on the site of St. Paul's, and Luna was one of the names of the goddess. The termination of the name has been traced to "don," or "din," which, in Celtic, means a wood or hill, or fortified town. Although these conclusions are, however, at best doubtful, it is certain that London became, in early times, a place of great importance, and increased rapidly in wealth and population.

The position of London on the Thames marked it out as a natural centre of commerce; and the situation, with reference to the Continent, was convenient, in days when our kings had important possessions abroad. London was a walled town, and the walls were first built in Roman times, as is proved by the remains which still exist, and are brought to light from time to time, as clearances and demolitions are effected. The course of the walls may be roughly traced by the names of the gates. Thus, if we start on a tour round the City, from the Tower, then as now a fortress, we come to Aldgate, thence to Bishopsgate, Cripplegate, Aldersgate, Newgate, Ludgate, and so to the Thames, where there was another fort. This fort was probably connected with the Tower by another riverside wall, built parallel with the Thames, and stretching east and west. The names of Dowgate and Belins-gate, or Billingsgate, indicate the course of this wall.

Besides the walls, the Romans must have executed other important works in London, as is proved by the interesting tesselated pavements, and other remains, which are still from time to time discovered. In the stormy times which followed the decline of Roman power, London experienced many vicissitudes, and suffered much violence, under Danes, Saxons, and Normans.

Gradually emerging from such misfortunes, we find it acquiring stability, as early as the twelfth century, for in the reign of Henry II., it is thus described by Fitz Stephen, a monk in the house of Thomas à Becket. He says that "amongst the noble and famous cities of the world, this of London, the capital of the Kingdom of England, is one of the most renowned, on account of its wealth, its extensive trade and commerce, its grandeur, and magnificence. It is happy in the wholesomeness of its climate, in the profession of the Christian religion, the strength of its fortresses, the nature of its situation, the honour of its citizens, the chastity of its matrons, and even in the sports and pastimes there used, and the number of illustrious persons that inhabit it." After referring to the royal palaces, he tells us of the gardens of the citizens, well furnished with trees. On the north, he says, are "cornfields, pastures, and delightful meadows, intermingled with pleasant streams, in which stands many a mill, whose clack is so grateful to the ear. Beyond, an immense forest extends itself. . . . This city," he adds, "is on the whole most charming, at least when it has the happiness of being well governed." He goes on to speak of a famous cook-shop on the river, where fish of all kinds could be had, besides other dainty viands, and describes Smithfield as a horse exchange and market. He then speaks of the pleasure resorts of the citizens, for horse-racing, archery, tilting, mystery plays, boar hunting, and the like, with skating and sliding on the ice.

The worthy monk had not left all his human sympathies behind him on entering the cloister, and he presents us with a view of old London in the twelfth century, possessing many of the advantages and elements of natural wealth, by which succeeding ages have abundantly profited. His account is the more interesting, because we have no thoroughly trustworthy maps or views of an early date, or indeed until the sixteenth century. I am fortunate, however, in being able to place before you an interesting series of engravings of maps and views of old London from the valuable collection of Mr. Crace, to whom my best thanks are due for his kindness.

After the sixteenth century, such representations abounded, and from them we may form a tolerably clear idea of the appearance of London under the Tudor and Stuart sovereigns. The peculiarities of its position, and the antiquity of its foundation, account, doubtless, for the irregularity of the lines of the great thoroughfares, and you will readily trace these in our existing streets of Bishopsgate and Aldersgate, from north to south; and Holborn and the Strand, from east to west.

London is not all changed. The churches of St. Paul and Westminster Abbey are still the great landmarks; London Bridge is still pre-eminent in traffic; the Tower is still the fort of London; and Westminster remains a Palace, although occupied by the Legislature instead of by the Sovereign. In the arrangements of modern London, we are still con-

trolled by ancient customs, and the lines of the great thoroughfares are, to a great extent, the same as in olden days.

Thus it happens that although Mediæval London was almost wholly destroyed by the Great Fire, an amount of historical interest clings to it, more than to many other cities; and certainly to a far greater extent than would have been the case had the grand schemes of Sir Christopher Wren for a new London been carried into effect. This remark applies, of course, chiefly to the older and central parts of the City, which were built upon and settled when St. Giles's was a village "in the Fields," and Lincoln's-inn was almost in the country.

The great monasteries of Grey Friars, Black Friars, and Carthusians had been dissolved; the former had become Christ's Hospital, and the latter the Charterhouse, founded by Sir Thomas Sutton, whose good deed was thus commemorated by a Poor Scholar:—

"Blessed be the memory,
Of good old Thomas Sutton,
Who gave us lodging, learning,
And who gave us beef and mutton."

Such foundations speak well for the public spirit of the age, as well as for the strong religious feeling which is evidenced by Sir Thomas Sutton's own prayer,—"Lord, Thou hast given me a large and liberal estate, give me also an heart to make use thereof."

The great commercial street of old London was Chepe, now Cheapside,—Chepe being a market by Saxon derivation. The houses here were of the type I have before described, as characteristic of the time, with gables towards the street. I may call your attention to various examples of old houses in the engravings before you, such as the ancient timber houses in the Strand, some houses in Chancery-lane, Sir Paul Pindar's house, and others shown in the general views.

Most of the houses included shops, which were commonly external structures with lean-to roofs against the front walls. "Chepe" was the great centre of business, with the best shops of goldsmiths, mercers, and others. One of the famous Eleanor crosses was erected in it, opposite to Wood-street, and two conduits supplied water for drinking and for domestic use. The eastern, or great conduit, was near to the Poultry, which was used as a market; and the small conduit stood at the western end, towards St. Paul's. The corn-market was held in Cornhill. The Standard was placed close to Bow Church. It had four spouts of water running different ways.

The Exchange was at the eastern extremity of "Chepe," as it is now, and at the west end was St. Paul's, with numerous ecclesiastical buildings clustered around it, and the famous Paul's Cross, from the pulpit of which Church dignitaries preached many varying doctrines, as the teaching of the Papal or the Reformed Churches came by turns into prominence and power. As assemblages here seemed likely to trouble the public peace in the post-Reformation days, when theological strife was only too apt to give rise to violence, the cross was pulled down by order of Parliament, in 1643. It was then a covered and partly enclosed pulpit, with a staircase leading to it, and a domical roof surmounted by a cross. In early times, penances were performed here, as in the case of Jane Shore.

Old St. Paul's was entirely destroyed by the fire, not before the western end had been modernised by Inigo Jones, who built here his famous Corinthian portico, looking down on Ludgate. The old church must have been magnificent, with a length of 700 ft., and the central spire upwards of 500 ft. in height.

The spire had fallen before 1666, but I have placed before you some views of St. Paul's, both as it existed at the time of its destruction, and also as it has been supposed to have appeared in all its original Mediæval glory.

There seems to have existed, from the earliest times, some sort of rendezvous for merchants and traders, where the Royal Exchange now stands. At first, these personages only met at street corners, or under the arcades, which were not uncommon in Mediæval towns, and it was not until the sixteenth century that Sir Thomas Gresham erected a regular guild for the London merchants, thus giving another example of the public spirit of which I have before spoken. The work erected by Sir Thomas Gresham consisted of an open central area, with arcades around, and rooms over the same, with shops at the sides, and this was the arrangement adopted in most buildings of a similar nature abroad.

There is a description of the Exchange on an old print, which thus proceeds, "The Royal Exchange was erected in 1566, at the sole charge of Sir Thomas Gresham, knight, and was burnt down 100 years after, in 1666. After the fire it was rebuilt, most part with stone, with such curious architecture that it surpasses all other changes or burses. The whole fabric cost about 5,000*l.*, one half paid by the Chamber of London, and the other by the Company of Mercers. There are 160 shops above, let at 20*l.* rent each, and 30*l.* fine, and several shops below, on every side, and large vaults underneath, which yield considerable rents. The ground whereon it is built, being but 171 foot from north to south, and 203 foot from east to west, is very little more than three-quarters of an acre, and, when all let, produces 4,000*l.* yearly rent." [What is that three-quarters of an acre worth now? and what rent would it produce?]

The building was styled the "Byrsa Lundinensis, vulgo, Royall Exchange of London." It followed the main lines of Sir Thos. Gresham's work, and had an entrance under a central tower, with side arcade.

Proceeding eastward from the Exchange, and crossing the busy throng of persons proceeding southwards to London Bridge, we come to the Tower, with surrounding walls and moats. The Tower is a good illustration of what has been previously said, as to the gradual changes of an Englishman's house from a castle to a dwelling. At once "a fortress, a palace, and a prison," it has played an important part in most of the crises of English history, and many a proud noble has entered the Tower by Traitor's Gate, only to leave it for the scaffold on Tower-hill. It is, perhaps, the most interesting relic of Old London, and has been preserved, and partially restored, in recent times, with judgment and skill. The Tower was evidently a place of great strength, before the use and improvement of artillery, and occupied almost the position of a tête du pont with reference to London Bridge, the only bridge of Old London.

Old London Bridge had an importance from this circumstance, beyond that of its modern successor. It was lined with shops, after the custom of the time,—a custom which is still exemplified, as some of you are aware, at the Ponte Vecchio at Florence. In London, the bridge was defended on the Southwark side by a turretted gateway, the upper part of which displayed the heads of those who had died by public execution,—a ghastly introduction to the City, which was transferred to Temple Bar in the reign of Charles II. The houses on the bridge had been much altered and disfigured before their final demolition; but some of the older engravings show that the earlier structures were not devoid of architectural pretensions. They were not at first arranged like a street, as at the Rialto at Venice, but were gathered together, so as to form square masses, entirely isolated, with inner quadrangles, and a passage through the centre of the latter. The quadrangles were lined with shops.

At the City end of the bridge, the first London Waterworks were constructed with wheels and pumps in 1582. Until this primitive machinery was erected, conduits, and public pumps, and cisterns were the only sources of supply available by the citizens. The narrowness of the arches of the bridge, and the obstructions of its heavy piers, increased the current in the tideway to such an extent that to "shoot the bridge" was a recognised peril, so that numerous accidents happened, and many suicides were there committed. There was a chapel near the centre of the bridge, of which I am able to show you an illustration. It projected eastwards, and was dedicated to St. Thomas. The remains of it were uncovered when the present London Bridge was built, and a very beautiful series of drawings were made of both Old and New London Bridge by my distinguished friend, Mr. E. W. Cooke, R.A. There was a destructive fire on Old London Bridge in 1758.

New London Bridge was commenced in 1824, and was opened to the public in 1831 by King William IV. and Queen Adelaide. It is already so far antiquated that it is pronounced insufficient for the traffic, and various schemes have been suggested in order to increase the width of the roadway. As it stands, it is a fine specimen of engineering art, erected at a time before engineers came to think that they might disfigure our towns to any extent, provided their ugly roofs and misshapen girders stand, and their shareholders make profits. Bridge building in early days was regarded as a work of piety, and was carried on by confraternities, called Brethren of the Bridge. Hence the frequency of chapels on bridges, of which many records exist.

From London Bridge to Westminster the river, as yet little polluted, was lined with important buildings, the residences of the nobility. Here were Winchester House, the palace of the Bishop of that see, with St. Saviour's Church, all on the Surrey side. Hard by, were the Globe Theatre and the gardens for bull and bear baiting.

Immediately opposite stood Fishmongers' Hall, and after passing Dowgate and other wharfs, and the sanctuary at Whitefriars, we come upon the Temple Gardens and buildings standing on the verge of the district saved from the Great Fire. The Templars' magnificent church, so well known to most of us, is one of our finest reminiscences of Old London.

After the Temple the present names of the streets serve to recall to us the history of the past. Thus, where Essex-street now is stood the palace of the famous Earl of Essex, the favourite and victim of Queen Elizabeth. Arundel House was near, and old Somerset House, built for the Protector Somerset by John of Padua. Closely adjoining was the Savoy Palace, of which the chapel still exists, and maintains the rank of a royal chapel.

We then find Worcester House, where Beaufort-buildings now are; and Salisbury House, on the site of the present Cecil-street; Durham House, the residence of the Bishop of that see; and York House, belonging to the Archbishop, next follow. You may mark the site of the latter by the water-gate of Inigo Jones, which now stands, deserted and forlorn, on dry land, cut off from the river by the embankment.

Northumberland House, with a fine garden, was the last great house before reaching Whitehall and Westminster. It was on the site of an ancient abbey. Every trace of it has now, as you are aware, been removed, and the old position can only be recalled approximately, for the future, by the name of Northumberland Avenue, given by the Metropolitan Board of Works, to their new street connecting Charing Cross with the Embankment. It is impossible to regard the sweeping away of old landmarks without regret, but in the case of Northumberland House the old buildings had long since been destroyed, and there was nothing in their comparatively modern successor of sufficient artistic value to prevail against the urgent necessity for improving the main communications of London.

Where the statue of King Charles is now placed, the cross of Charing once stood. It is supposed to have been octagonal in plan, with of eight statues in niches. No precise drawings it exist, but the restoration of the cross in front of the South-Eastern Railway Station was based, as far as possible, on the scanty data of archæologists. Another Eleanor Cross was situated in Cheapside, but it seems to have been destroyed or removed. It was succeeded by Cheapside Cross, which was pulled down, in Puritan days, under an order of Parliament, by Robert Harlow, with a troop of horse and two companies of foot soldiers. We may judge from the force employed that the work was not popular with the citizens, although it is recorded that "at the fall of the top cross, drums beat, trumpets blew, and multitudes of caps were thrown into the air, and a great shout of people with joy."

Returning from Cheapside to the river, I must not omit to notice Baynard's Castle, which stood close to the great monastery and church of Black Friars, and between the latter and Queenhithe. Baynard's Castle was a relic of Norman architecture,—a rectangular mass with flanking turrets. It had royal reminiscences, and Richard III. was crowned there. The English kings were well supplied with palaces, for without reckoning the Tower and Baynard's Castle we find the Savoy, Whitehall, and Westminster, within a short distance of each other. Near to the Savoy was the palace of Lord Burleigh, afterwards called Exeter House, and ultimately converted into a bazaar and menagerie, under the name of Exeter Change.

Whitehall was not originally a royal palace. Under the title of York House it had long been the London residence of the archbishops of the Northern province, and so remained until the fall of Cardinal Wolsey, when it was seized by his royal master. The name was then changed to White Hall, a title supposed to have been suggested by the whiteness of some stone buildings then in progress. It was intended to connect Whitehall with Westminster, and to give to the whole range of buildings the title of the "King's Palace at Westminster."

Westminster had been a royal residence from Norman, and even Saxon, times, and the walls of Westminster Hall are full, as I mentioned before, of remains of Norman arcades, which have been since filled up.

At right angles to the hall was St. Stephen's Chapel, one of the most beautiful structures of the thirteenth and fourteenth centuries. It was the Chapel Royal of the palace, and was well worthy of its name. Unfortunately it is now lost to us, having been destroyed by the fire which consumed the old Houses of Parliament in 1834. It had large four-light windows of beautiful tracery, divided internally by niches, and there was a wooden roof. The crypt below the chapel not having been wholly destroyed, has been restored. It is unusually lofty for a crypt, and had been used originally for a chapel. When it was decided to rebuild the Palace of Westminster, there was an intention to restore this building to its original use as the chapel of the palace. Unfortunately this idea has never been carried into effect, and Westminster is without the Chapel Royal, which has always been considered a necessary adjunct to a royal palace.

The precincts of Westminster were entered from Whitehall by an archway, the design of which has always been attributed to Holbein. It was a curious structure, as you will perceive from the view before you, with turrets flanking a centre gateway, the whole being covered with colour in the form of tiles and earthenware, after a fashion which has in some degree come again into favour in our own times. We have, unfortunately, no remains existing of the old palace at Westminster, as the fire swept away all traces of it. Fortunately the Abbey is still our inheritance, and presents much the same appearance as of old, if we deduct the towers of Sir C. Wren, and add a heterogeneous assemblage of sculpture, much of it indifferent, and nearly all of it unsuitable to a great Mediæval church.

In New Palace-yard, the wool-market was held. There was here a conduit, from which ran wine on great occasions, such as coronations. Near the angle of the yard stood the clock-tower, not far from its present graceful successor. The clock possessed a great bell, which we will hope was not cracked, as is the case with unfortunate Big Ben.

The buildings I have mentioned, being all of importance, were, for the most part, solidly constructed; but we must not forget that the ordinary houses of the citizens are still built of wood; while wooden projections, such as pent-roofs and balconies, abounded. Stories projected one beyond another, until in narrow streets they almost touched. Picturesque they might be; but, alas, how dangerous! and how sadly was their danger proved! Close contact led easily to infection, the danger of which was aggravated by the absence of fresh air and ventilation.

The Great Plague in 1665 plunged the city into mourning. It is scarcely an exaggeration to say, in Scripture language, "There was not a house where there was not one dead," for it has been reckoned that one in four of the population was carried off by the disease, and 70,000 persons died.

Hardly had the plague ceased, when the Great Fire swept away almost the whole of Mediæval London. So extensive a destruction could hardly have been possible, except under the conditions of domestic architecture which I have attempted to describe to you.

Evelyn records in his diary that it commenced at ten o'clock at night, on the 2nd of September, 1666, and continued for three days. Speaking of the helplessness of the people, he says,—"The conflagration was so universal, and the people so astonished, that from the beginning, I know not by what despondency or fate, they hardly stirred to quench it, so that there was nothing heard or seen but crying out and lamentation, running about like distracted creatures."

The Thames was covered with boats, conveying to places of safety families and such of their goods as they could hastily save. The flames became so widely spread that none could approach for the heat, and the glare was seen for fifty miles. Evelyn returned to his country house, having, as he thought, seen the last of London. He writes in his diary,—"I returned with a sad heart to my house, blessing and adoring the mercy of God to me and mine, who, in the midst of all this ruin, were like Lot in my little Zoar, safe and sound."

Well might he suppose that the calamity was irretrievable. Five-sixths of the City lay in ashes, and the flames had extended over a space of a mile and a half in length, and half a mile in breadth. As Evelyn wrote,—"London was, but is no more."

This was in 1666; what would he have said if he could have been told that 200 years afterwards London could be described, in the language of a recent writer in one of our periodical reviews, as covering *an area of* 78,000 *acres*, with a jurisdiction over 576 *square miles*, with *four millions* of inhabitants, increasing at the rate of 75,000 *a year*?

Such is London now.

THE ROMAN BATHS.*

It has been the custom to class under the title of "Pagan" architecture all styles previous to the fall of the Roman Empire, and to assume that the principles, moral or religious, under which the Egyptian, Assyrian, Greek, or Roman styles were founded were the same; and that, being Pagan, they were scarcely fit for our study, and certainly not for our use. A little consideration, however, will show that, although the formation of a style may owe its chief development to the impulse of religious feelings, the decoration only as such is the exponent of these, and the construction depends almost entirely on scientific knowledge. It is true that in some measure the finest examples of buildings of bygone styles have been erected for religious purposes, and at the present day it is difficult to decide whether the temples of Thebes, in Egypt, for instance, are to be regarded strictly as temples, or whether they may not be the palaces of the king, who was in Egypt the spiritual as well as the temporal governor. Be this as it may, as architects we have first to deal with the æsthetic and the constructional form of these buildings, and we may therefore dispense with the religious element altogether, and consider only whether for our purposes and uses, and in our climate, there are not principles of plan, of form, and of construction in Roman buildings, and especially in the *Thermæ*, which are worthy of the most careful study.

I have lately had occasion to visit a large number of Sir Christopher Wren's churches in the City, the plans of which, and the forms of their vaults and ceilings, are based on a true knowledge of Roman architecture; and although in their decoration I should like to see a total change of principle, I am bound to confess that for the purposes for which they were designed, their plans were better adapted in their way than many more modern erections, whilst the form of their vaults (though constructed in plaster), is of wonderful variety and æsthetic excellence. The study of true Roman architecture has generally been discountenanced, in consequence of an attempt to read its principles through Greek spectacles. We are willing, even the most bigoted Goths among us, to accord the palm of excellence in architecture to the Greeks, but Roman architecture has been generally condemned by the advocates of pure style. This is, I think, a mistake, for although that exquisite refinement and beauty of form and detail which we all admire in Greek work is not found in Roman, there are other qualities which render its careful study even more useful to us. The arch, the vault, and the dome (whether due to the Etruscans as inventors or not) are first worked out by the Romans in all their grandeur and magnificence; and many of the principles supposed to have been invented in the Middle Ages will be found in Roman work at the beginning of our era. The intersecting vault, with the concentration of its thrust at certain points; the rib, and the carrying of the springer well within the walls on a column or shaft, so as to bring the thrust of a vault within the walls; the reduction to a minimum of the thickness of walls between piers, the piercing them with large windows, and the filling-in of these windows with pierced marble slabs forming a kind of plate tracery, are all inventions designed and carried out in Roman architecture.

What is therefore most necessary to do if we wish rightly to appreciate Roman architecture is to discard for a moment the decorative forms which have been applied to it, to ask ourselves whether the buildings serve the purpose for which they were designed, and in the best way; whether the principles of construction the Roman architects employed were sound; and whether, apart from detail, there is not in the general design of their work a grandeur and magnificence unsurpassed by that of any other nation or period. In attempting to draw a parallel between Greek and Roman architecture, it must be remembered that the results were arrived at in a different way; the materials employed were not similar, they were used in a different way by people of great dissimilarity in their character. In the trabeated architecture of the Greeks stability was obtained by a due observance of the laws of weight. The adhesion of materials was not necessary, and mortar was not required or used; the stone used was of large size, involving great expenditure of time in its quarrying, in its transport, and in its putting together. It was also an external architecture, and the spaces covered over were not of any great span. In Roman arcuated construction, however, the span of their vaults exceeds that of the largest cathedrals; the materials employed were of small size, as tiles, rubble masonry, and concrete; it was absolutely necessary that the mortar should be of such a nature that when consolidated the masses should be perfectly homogeneous; and last, and not least, a new principle of stability had to be considered, involving far greater risks and responsibility, viz., the resistance of thrust of an arch or vault. If you will bear these facts in mind you will, I think, agree with me that the two styles must be judged on their own respective merits, and that it is unwise to carp at the artistic shortcomings of a nation which has done so much to advance the scientific development of architecture, and who, in their roads, bridges, and public buildings, were the pioneers of the civilisation of the present day.

Coming now to the immediate subject of my paper, I do not purpose to enter into an archæological inquiry on the precise destination of the several parts of the Roman baths. It will be sufficient for me to point out that a number of rooms of different sizes and heights had to be grouped together for particular purposes; to draw your attention to the skilful and artistic way in which this was done, and how various are the combinations in the examples I am able to lay before you. I wish to point out how the masses of masonry are grouped together in the positions required for the resistance of thrust, and how every available space is turned to account. It is true that these masses occupy more space in proportion to voids than in the Mediæval or modern erections, but it is equally true that when left alone only to the elements of the weather they have resisted destruction to the present day. The great hall of the Baths of Diocletian at Rome now serves as the church of St. Angelo, and those of Caracalla and the Temple of Maxentius, by the masses of them which remain, still bear witness to what might have been their condition if they had not been wantonly destroyed by the hands of man. The Baths were institutions of such great importance among the Romans that under the Roman emperors there were no fewer than 800 of them in Rome itself. The most important of these, the *Thermæ*, as distinguished from the ordinary baths, were erected by the emperors as much as a sign of their wealth and power as from a desire to find favour with the people by gratifying their sense of luxury and magnificence. Palladio's work contains plans of many of them, and as in his period their remains were much more extensive than at the present day, his plans may be taken as fair representations of the original designs. They are not by any means isolated examples of Roman architecture.

The baths of the Romans (or at least the *Thermæ*) are quite a different class from those built in Greece or now existing in Pompeii. The latter corresponded more or less to what is known as the Turkish bath here in London, and were erected simply for the purpose of bathing. The Roman baths of Caracalla, Diocletian, and others, would seem to have taken the place of our clubs, reading libraries, gymnasiums, and museums. Although in the early days of the empire permission was not given to enter till two o'clock in the afternoon, later on they were open at all times, and they became the resort for that opulent class of people who preferred to live on the spoils of those they had conquered rather than on the gains of their own labours. In addition to the opportunities offered in the great halls for bathing in the *frigidarium*, *tepidarium*, and *calidarium* (the cold, tepid, and hot baths), the immense enclosures contained large open spaces for gymnastic and athletic performances; the side porticos and halls became resorts for those who wished to hear poems or declamations by the poets and writers of the age, taking therefore the place of the reading and lecture

* Substance of a paper read by Mr. R. Phené Spiers, on the 23rd inst., before the Architectural Association.

rooms of our day. This will enable you to understand the nature of the problem which was set before the Roman architects,—to combine a series of halls and rooms of different sizes and heights, so that all should be in easy communication one with another, whilst receiving that light, and in some cases that warmth, which was necessary for the purposes of the building. It would seem also, from the fact of the discovery of the Hercules and other celebrated statues on the sites of these baths, that these halls were to some extent museums, not as we understand them in the present day, collections of artistic objects all huddled together in small rooms, but placed decoratively to complete the furnishing of the building, if I might so term it. How far the Roman architect succeeded in solving the problem, I have now to lay before you, and although it is scarcely likely that buildings of a similar class will ever be required again, there are grand features of disposition in their plans which every student ought to make himself acquainted with, in order to extend the scope of his mind and facilitate his dealing with similar groupings where occasionally required in the distribution of rooms and halls in town-halls, exchanges, libraries, and other public buildings. I may here remind you that the plan of St. George's Hall, Liverpool, one of the most celebrated buildings of this century, designed by the late Mr. Elmes, was based on the principles laid down in the central hall of the Baths of Diocletian. I shall also have to direct your attention to another and perhaps the chief element in these baths, and that is the means by which these grand halls were vaulted over. It is perhaps scarcely necessary to remind you that the leading problem which has led to the development of all true styles has been in the covering-in of their monumental buildings. The position of walls and columns in the trabeated styles of Egypt and Greece gave rise to the several proportions of those features, the relation of their thicknesses in the case of walls, and diameter in the case of columns, all these being based upon the strength required to support crushing weight. The long parallel walls of Assyrian and Sassanian temples were dictated by the necessity of supporting a continuous vault, and the position and size of the piers, columns, and other supports of Roman architecture were fixed by the respective weights of their groined vaults to resist the thrust spread over or concentrated on the several points of support.

In later times the pointed rib and intermediate web, and the working out of these features, gave that immense impetus to the development of Gothic architecture which we find in the work of the Middle Ages, and although the principles of design of the Roman and Pointed styles vary in many other points, still it will be found that the chief difference lies more in the invention of the rib as an *accentuated* feature than to any predilection for a pointed over a circular-headed opening. As the wagon-headed, or barrel-vault, with its intersections and groins, and the dome and its pendentives form the chief and leading principles of Roman architecture, so the accentuated rib, with its secondary filling-in, the web, constitutes that of Gothic architecture, and, if I can get you rightly to understand this, you will then see the important position which a proper knowledge of the Roman and Gothic principles of vaulting should take in your studies. It was for this reason that I ventured some time ago to take exception to some remarks made by Mr. Sharpe,* in which he described the dome of Sta. Sophia at Constantinople as a Mediæval dome, and I shall take the opportunity of returning to this subject later on.

The Baths of Caracalla were situated on the Aventine Hill, on an elevated platform, part of which was artificial. They covered an area of 65,288 square yards, including the gardens, exercise grounds, and porticos with which the main block of the *Thermæ* is surrounded. The principal front overlooked the Appian Way, and consisted of two floors of private baths each preceded by a small room for undressing in, and entered from a corridor which ran along the whole front, and constituted the principal feature in the design. At regular intervals in this front were four staircases which led to the main platform on which the *Thermæ* were placed. The platform was surrounded by halls and porticos, and on the further side from the entrance were placed reservoirs of water supplied by one of the great aqueducts which cross the Campagna. In front of these reservoirs was a grand stand (if one may so term it), of stone steps, from which the people witnessed the gymnastic exercises which took place in the open space behind the *Thermæ*. The rest of the grounds were laid out with promenades planted with trees and decorated with marble statues, fountains, and seats. The central or main block, probably the only portion which was erected by Caracalla, A.D. 211-217 (the outer porticos and accessorial buildings having been executed by his successors Heliogabalus and Alexander Severus, A.D. 218-235), was entered by several doors on the north-east and west sides, and through open porticos on the south, all the halls and courts forming part of the *frigidarium* or cold baths being on the north side, those appertaining to the *calidarium* or hot baths being on the south, and the *tepidarium* or tepid baths between the two. On the east and west sides of the block are large open courts with peristyles round, and various halls, which served as lecture-rooms where recitations and readings were given by the poets, philosophers, and historians of the age. The whole block measured 720 ft. by 375 ft., and is said to have contained no fewer than 1,600 marble chairs for the bathers. The principal entrance to the baths was on the right and left of the *frigidarium*, and the vestibules on either side have smaller rooms for undressing in, for anointing with oil, and other processes. The *frigidarium* is a large swimming-bath open to the sky; beyond lies the largest and most important hall of the building, viz., the *tepidarium*; here the baths are placed on either side of the hall in huge niches situated between the buttresses of this great hall. From the centre of the *tepidarium* a spacious corridor with baths on each side led to the *calidarium*, which is furnished with seats all round and a circular bath in the centre. Thence the bathers passed to smaller halls with tepid and other baths, the offices or service rooms for all these baths being in close proximity. The halls on the east and west sides of the main block and surrounding the peristyles were destined for the use of the *literati* of the age, whose works were chiefly made known to the public by recitations. Here also may have been placed the libraries for papyri rolls and MSS. The central block, I have remarked, was surrounded by promenades, gardens, and exercise grounds. Outside these, and forming the enclosures, were other halls, which were set apart for gymnastic exercises under cover; and on the north side of the area on either side of what I have called the "grand stand" were rooms with baths, &c., destined for the use of those who took part in the gymnastic exercises in the arena. Such was the destination, so far as we are enabled to determine, of the several parts of the *Thermæ*. In all the other imperial establishments the arrangements were similar; in some, such as those of Titus and Diocletian, the *calidarium* is a barrel-vaulted hall, but more enclosed than the *tepidarium*, though still placed on the south side so as to derive a portion of its warmth from the hot rays of an Italian sun.

I now come to the elevations and sections of the building, and here I have to draw a distinction between architectural lines given by the construction and their decoration. Blouët and others inform us that the walls were lined with marble slabs, with detached marble columns up to the springing of the arches, and above that the walls and vaults were decorated with paintings on stucco-grounds, or with panels in stucco inlaid with mosaics, the floors being paved with mosaics similar to those of which we have now some examples in the British Museum. The distinction I wish to draw is this: the construction of the walls, the forms of the vaults and their penetrations, the niches and openings, are Roman; the decoration is in a certain sense Greek, was probably executed by Greek artists, and was suggested by the orders and other features of Greek architecture. It is to the former more particularly that I desire to draw your attention. Splendid materials, magnificence and richness, and fine proportions suggested by the simpler forms of the Roman structure, go far to overcome one's dislike to the *appliqué* character of the decoration; all that, however, may be stripped off in your imagination as it is now in the actual ruins. The splendid shell of true Roman architecture still remains for your study and admiration. I propose, therefore, to treat only of the construction and architectural disposition of this shell; its decoration is a question of detail.

The first feature to which I have to direct your attention is the intersected barrel-vault of the great central hall or *tepidarium*. In the smaller examples of this feature it is probable that a continuous centering was formed, which was shifted on as the work proceeded. In the great halls, however (80 ft. in span), the cost of centering would have been considerable, and it would scarcely have been safe, however excellent the consistence of the mortar, to have trusted to such large masses of concrete without any other bond. The researches of MM. Blouët, Choisy, and Viollet-le-Duc have shown us that in the interior of these huge masses was a skeleton or framework of ribs and longitudinal ties, the spaces between being filled in afterwards with concrete. In the "Dictionnaire Raisonné" M. Viollet-le-Duc gives a diagram showing how these ribs and the filling-in were formed. Wooden centres were placed at certain distances apart and boarded over; on these were laid a shell of flat bricks or tiles measuring about 20 in. square, which formed the under-surface of the vault; then ribs of the same tiles on edge were formed over the centering, with longitudinal ties at intervals from rib to rib and built in with them. It remained only to fill in the intervals with concrete formed of mortar, pumice stone, tufa, and other light materials, which rested on the tile shell and kept it from buckling or twisting. When the vault was sufficiently consolidated the centering could be shifted on and made use of again. This was the simplest form of vault; in the *tepidarium*, however, the barrel-vault is intersected by three other barrel-vaults, concentrating the thrust on eight piers, and the groin or line of intersection became a very important constructional feature,—so much so, that a special centering had to be formed. The principles of formation, however, were the same, except that under each rib a small triangular space had to be filled in with concrete on the tile shell before the rib was built; and to tie them in and give the form, certain tiles had to be cut to shape. When the diameter of the intersecting vault was much less than that of the main vault, much difficulty must have been experienced in the formation of the centering, because of the double curvature of the rib, and the invention of the Gothic rib accentuating and prescribing the form of the web between was one of those grand and happy discoveries which, as I have before observed, gave the great impetus to the development of Gothic architecture. It must not, however, be forgotten that to it was sacrificed what will always constitute the great beauty of the Roman vaults, viz., the subserviency of the *means* of construction to the end of simplicity and grandeur of form.

The Romans considered simplicity of form as the leading requirement, whether in barrel-vaulted, segmental-vaulted, or domical structures. The continuous web of a barrel-vault intersected by similarly-shaped vaults, and the spherical form of the dome, were forms familiar to them in nature, in caves and in the firmament,—which to them, though not tangible, was of actual existence; the accentuated lines of a quadrilateral vault, with its four independent ribs of no definite form, would have appeared strange to them and malformed had they seen it. I do not wish to depreciate the development of Gothic architecture, and no one admires more than I do the majestic nave of Amiens, or the choir of Beauvais; but I do contend that in the great central halls of the Romans we have elementary forms which, when decorated with appropriate ornament, are far grander and simpler than any ribbed vault can be. The finest halls which have ever been erected by the hand of man are found in the Baths of Diocletian and Caracalla, the Temple of Maxentius, and the Pantheon,—all in Rome,—and the Church of Sta. Sophia at Constantinople, perfect in their forms and in their proportions.*

Fall of a Spire in Glasgow.—On the 14th inst. a serious disaster happened to the Established Church in course of erection at Kelvinside-avenue, a little to the north-west of the city. At the north-east corner of the building there is a tower 90 ft. in height, and a spire which is to be carried up to a further height of 60 ft., is being built. Towards noon the workmen were compelled by the violence of the wind to cease operations. The scaffolding at length fell, bringing with it about 9 ft. of the steeple. No one was injured.

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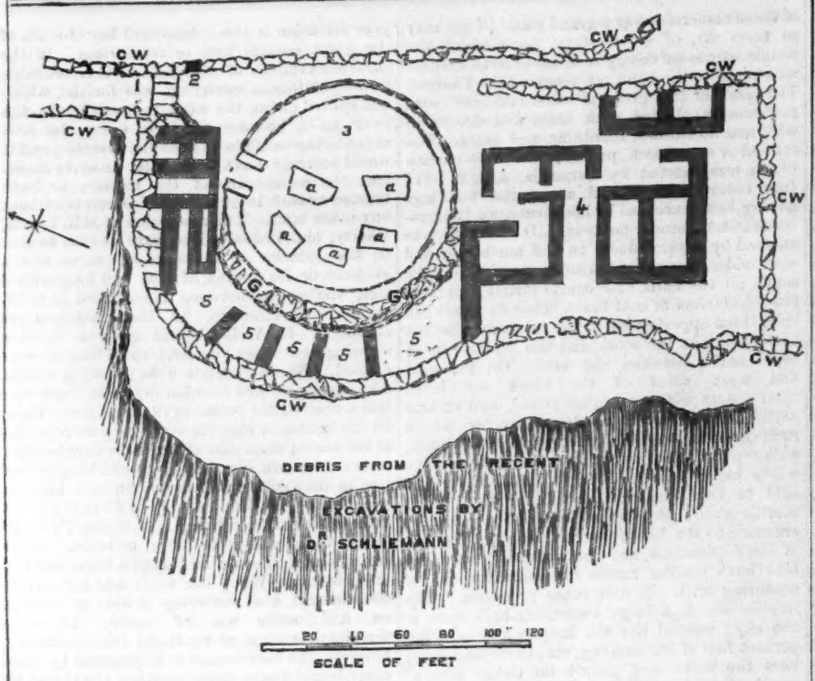
* "Byzantine Architecture and the Architecture of La Charente."—*Vide Builder*, vol. xxxiv. (1876), p. 632.

* Remainder in our next.



Plan of five Tombs in the Circular Enclosure, and Foundations of Agamemnon's Palace.

1. The Lions' Gate.
2. Guard Chamber.
3. Double circular arrangement of Slabs.
4. Foundations of Palace.
5, 5, 5. Cross-walls between outside Wall.
6, 6. Cyclopean Dome enclosing the Five Tombs.
a, *a*, *a*. The Five Tombs.
CW. Old Cyclopean Walls of Citadel.

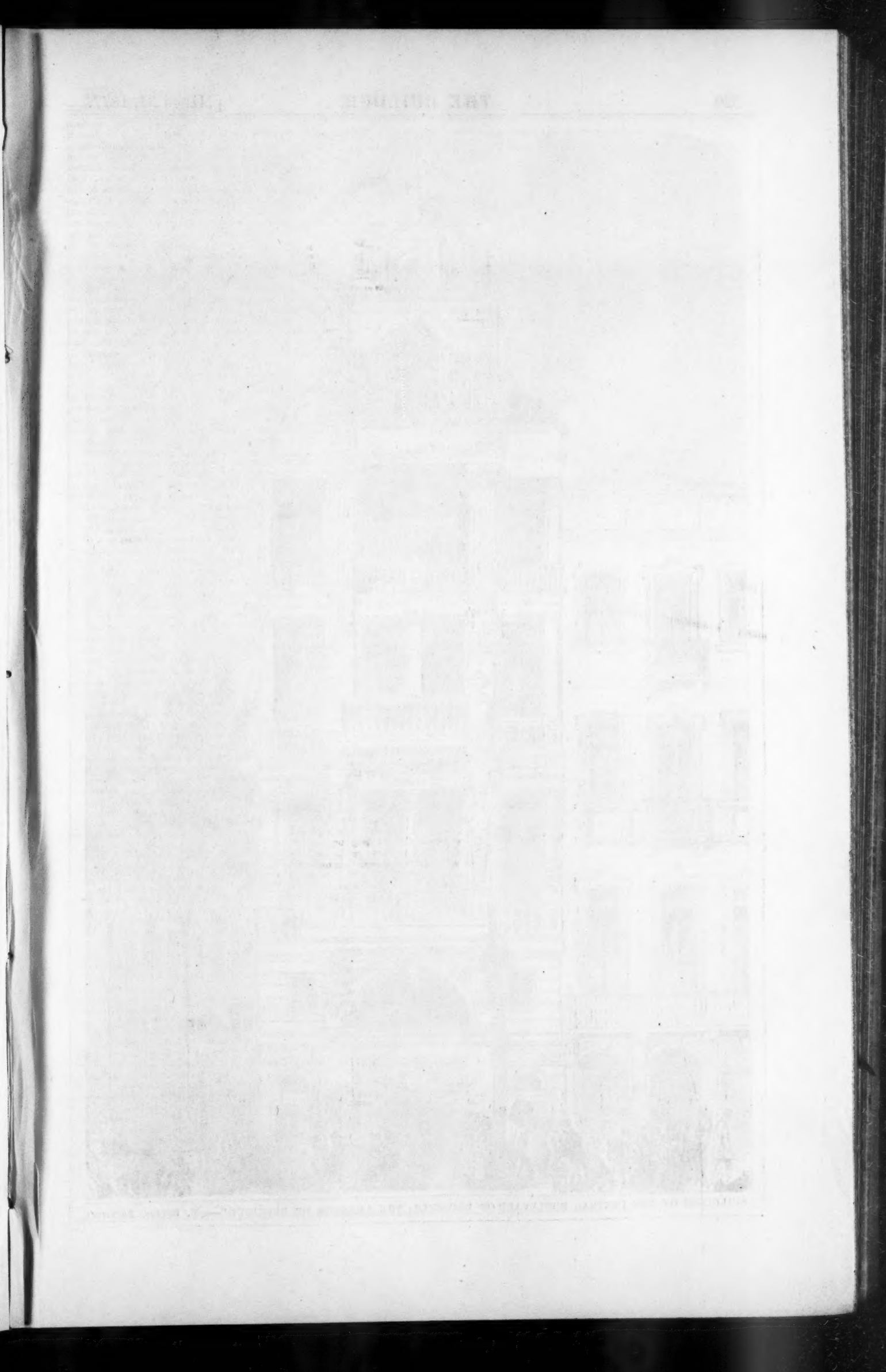
THE EXCAVATIONS AT MYCENÆ.

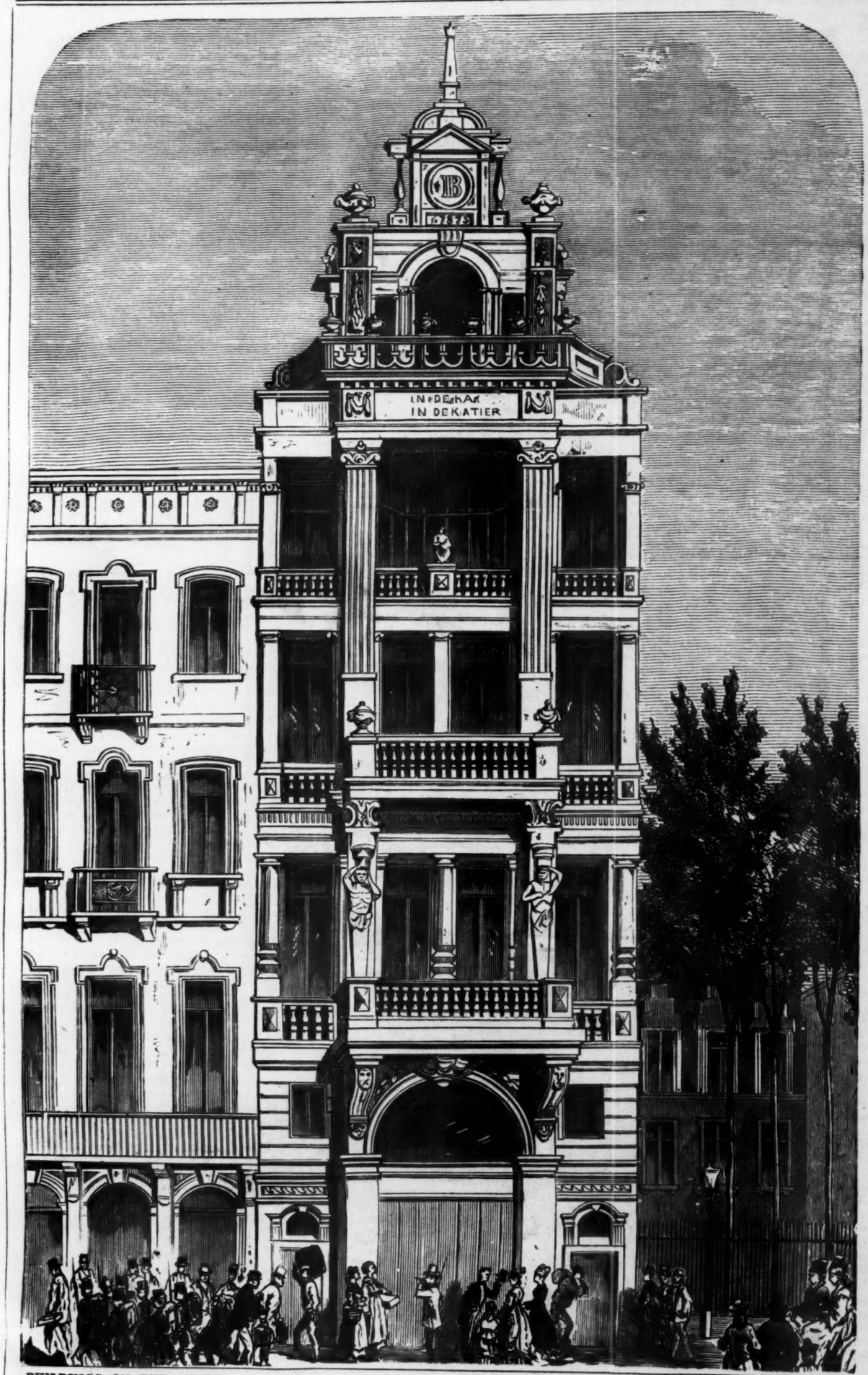
IN a letter dated from "The Treasury of Atreus, Mykenæ," Dr. Phené sends us the accompanying plan of the recent excavations by Dr. Schliemann of Agamemnon's Palace, on the lower citadel. Dr. Schliemann, he says, gave him every assistance. Dr. Phené reports the labour to have been immense, as the vast heap of *débris* beneath the walls, shown in the plan, attests. The circular enclosure, with an opening to the north, is the space in which the five tombs were discovered, with the numerous articles of treasure overlying the buried and cremated persons. The part marked 6, 6, is described as a domed Cyclopean wall (?), enclosing the space occupied by the tombs, where the rock was deficient. The place appears to have been, as Dr. Schliemann properly describes it, a palatial residence rather than an acropolis, as Sophocles designates it Δωμα, and Aristotle implies that it was used as a residence because the lower part of the Argolic plain was marshy, and, consequently, unhealthy. The city was spread around on the adjoining slopes, remains of it still existing. The part figured 1 is the well-known "Gate of the Lions."

The excavation of the domed chamber, popularly described as Clytemnestra's, was superintended by Mrs. Schliemann, and the quantity of *débris* there also attests an immense amount of labour in the cause of science.

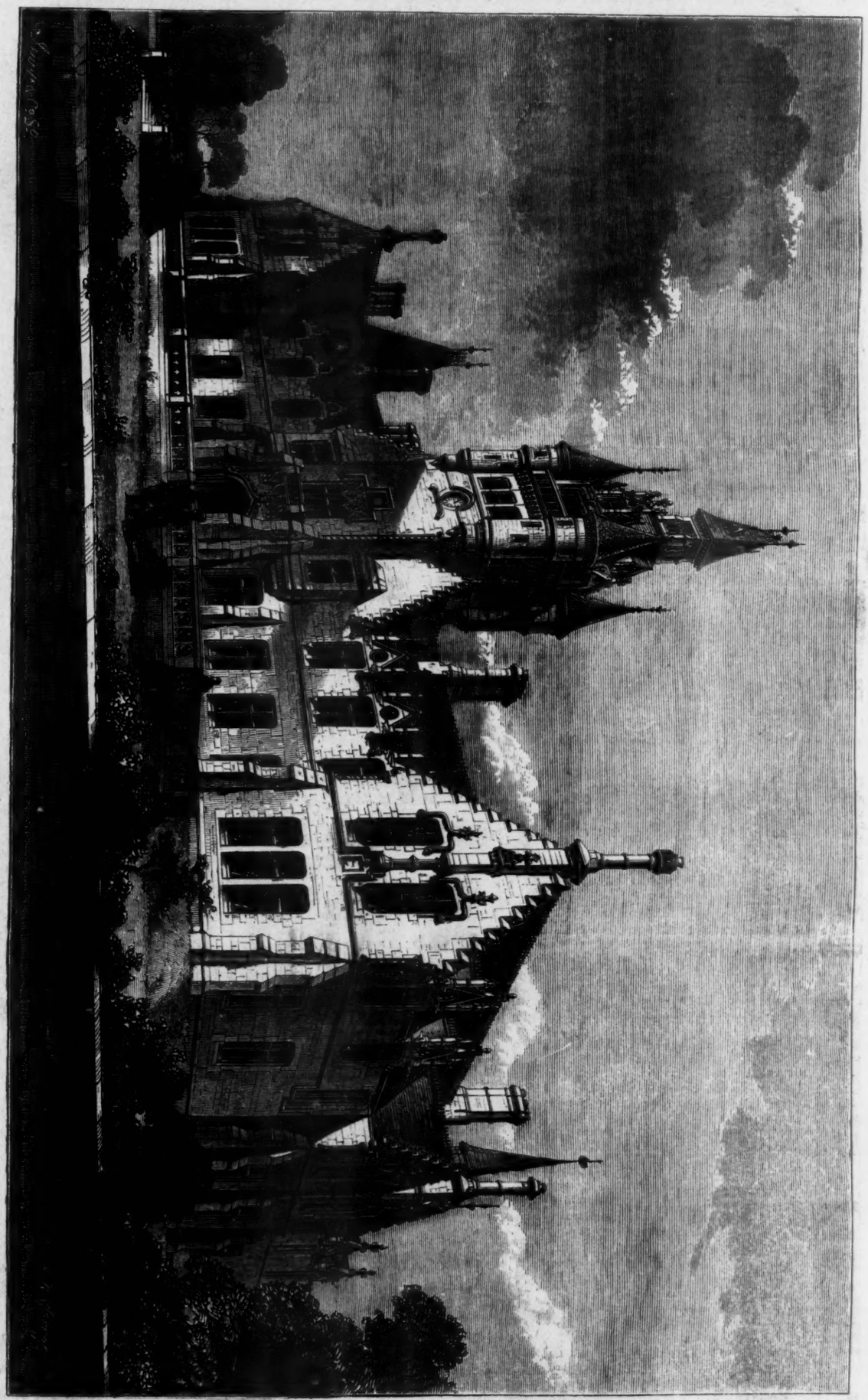
At a crowded meeting of the Society of Antiquaries, Burlington House, on the 22nd inst., Mr. Frederick W. Ouvry, president, in the chair,

Dr. Schliemann read a deeply-interesting paper descriptive of his recent discoveries at Mycenæ, the walls and tables being covered with illustrative photographs. After stating his reasons for having always understood Pausanias in the sense that the five tombs were in the Acropolis, citing for the fact that such was his opinion in 1869, his work, "Ithaque, le Péloponnèse, et Troie" (p. 97), Dr. Schliemann said that on the strength of it he, three years ago, sank thirty-four shafts in different parts of the Acropolis to probe the ground, and find the spots where he would have to excavate for the tombs. In twenty-eight he found nothing, but the other six, which he sank in the first western and south-western terrace, gave encouraging results, and particularly those two which he had dug within 100 yards south of the Lions' Gate. For not only did he there strike two Cyclopean house-walls, but he found also there a number of female idols and small cows in terra cotta. He, therefore, began extensive diggings here, but met with serious hindrances, and only at the end of last July did he find it possible to carry out his plans, when he gradually increased the number of his workmen to 125, which for four months had been the average. He ordered the workmen near the Lions' Gate to open a passage into the Acropolis, which, when the citadel was taken, had been blocked up by the huge stones hurled by the Mycenæans at the besiegers and by the ruins of houses which had been washed down from the top of the Acropolis, producing a heap of *débris* much higher than the gate itself. A much larger gang dug 40 ft. from the gate a trench 113 ft. square. A third party of workmen dug a trench on the south side of the Treasury in the lower city near the Lions' Gate, in search of the entrance. This Treasury, like that of Atreus, was to turn out subterranean. But either by accident, as some of the inhabitants of the Argolid say, or by the sacrilegious hands of Vely Pasha, son of the notorious Ali Pasha, who is said by others to have tried to force an entrance this way, the upper part of the dome-like vault has been destroyed, and the stones had fallen into the interior building, which had by degrees been almost filled with the rubbish. The examination of this Treasury, under Mrs. Schliemann, had been one of the most difficult they had ever made, partly from the nature of the terrain, and partly from the obstructiveness of the delegate of the Greek Government, under whose Argus-eye all the excavations were conducted. Hence they succeeded only in clearing out the passage of the entrance to the central part of this Treasury. The door has the enormous height of 18 ft. 5 in., and is 8 ft. 4 in. broad. On the threshold, which consists of a hard breccia, and which is 2 ft. 5 in. broad, was found a very thin round plate of gold. In the entrance also was one of the 4 ft. 3 in. high long-fluted semi-columns of calcareous stone; one of a pair which once stood to the right and left of the entrance. There was also a large fragment of a frieze of blue marble with an ornamentation of circles and rows of wedged-like signs in form of fish-spines; further, an almost entire frieze of white marble, with an ornamentation of beautiful spirals. Nothing further was found in this Treasury, which was evidently empty when the upper walls fell in. There were here no signs of the walls having been lined with brazen plates; it is, besides, less sumptuous, and seems older than the Treasury of Atreus. In the Acropolis Dr. Schliemann had entirely cleared the famous Lions' Gate, which he went on to describe, discussing also the old question of the symbolism of the lions surmounting the gateway, and of the altar surmounted by a column, on either side of which rest the fore paws of one of the two lions. One theory was that the column related to the solar worship of the Persians; another, that the altar is a fire altar, guarded by the lions; a third, that we have here a representation of Apollo Agyieus. Dr. Schliemann himself was of this last opinion, which, he thought, was borne out by the Phrygian descent of the Pelopidæ. The lion-cult of the Phrygians was well known. Besides, among the jewels found in the tombs, of which he was to speak afterwards, and especially in the first tomb, this religious lion symbolism reappeared. On two of the *repoussé* gold plates there found was seen a lion sacrificing a stag to Hera βοῶπις, who was represented by a large cow's head, with open jaws, just in the act of devouring the sacrifice. On entering the Lions' Gate were seemingly the ancient dwellings of the door-keepers, of whom some account was given. Further on, as at Troy, was quadrangular Cyclopean masonry, marking the site of a second gate of wood. Still further on were two small Cyclopean water-conduits; to the right of the entrance-passage were two Cyclopean cisterns. A little further on came to light that large double parallel circle of closely-jointed, slanting slabs, which had become so famous during the last three months. Only about one-half of it rests on the rock, the other half rests on a 12 ft. high Cyclopean wall, which has been expressly built to support it in the lower part of the Acropolis. The double circle had been originally covered with cross slabs, of which six are still *in situ*. Inside the double slabs was, first, a layer of stones, for the purpose of holding the slabs in their position. The remaining space was filled up with pure earth mixed with long, thin cockles, in the places where the original covering remains in its position, or with *débris* of houses mixed with countless fragments of archaic pottery wherever the covering was missing. This circumstance could leave no doubt that the cross slabs were removed long before the capture of Mycenæ by the Argives (B.C. 468). The entrance to the double circle was from the north side. In the western half of the circle Dr. Schliemann discovered three rows of tomb stelæ, nine in all, made of calcareous stone. All stood upright; four only which faced the west had sculptures in relief. One stela, precisely that beneath which was found the body with the golden plates representing the lion sacrificing the stag to Hera βοῶπις, represents a hunting scene. The two next sculptured sepulchral slabs represent each a battle scene. Details of these scenes were given, as well as of those presented by the other sculptured tombs, of which Dr. Schliemann's letters have already given some account. The Mycenæ slabs, he said, were unique of their kind. The manner in which they fill up the spaces not covered by men and animals with a variety of beautiful spiral ornaments reminds us of the principles of the painting on the so-called Orientalising vases. But in the Mycenæan sculptures nowhere do we see a representation of plants, so characteristic of ancient Greek ornamentation of this class. The whole is rather linear ornamentation, representing the forms of the bas-relief. Hereby we have an interesting reference to the epoch in Greek art preceding the time when that art was determined by Oriental influences, an epoch which may approximately be said to reach far back into the Second Millennium (B.C). Dr. Schliemann knew of no example in history of an acropolis having served as a burial-place save the small building of the Caryatides in the Athenian Acropolis, the traditional sepulchre of Cecrops, first king of Athens. But we now knew with certainty that Cecrops is nothing else than Kacyapa, the sun-god, so that the story of Cecrops having been buried in the Acropolis is a pure myth. But here in the Acropolis of Mycenæ the tombs are no myth, but a reality. The paper then discussed the question,—who were these great personages entombed here, and what were the services rendered by them to Mycenæ which deserved such splendid funereal honours. It was argued at length that the inhabitants of these tombs could be none other than the very persons spoken of in the extract





BUILDINGS ON THE CENTRAL BOULEVARD OF BRUSSELS: THE "BANQUE DE BELGIQUE."——M. BEYART, ARCHITECT.



THE MORGAN HOSPITAL, DUNDEE.—MESSRS. PEDDIE & KINNEAR, ARCHITECTS.

Dr. Schliemann had cited at the outset from Pausanias, in spite of the certainty that the traveller of the Antonine age could never have seen the tombs, which were then covered by a 10 ft. thick layer of prehistoric rubbish. No ancient writer mentioned that Mycenæ was rebuilt after B.C. 468, and Strabo even said that the site had remained uninhabited ever since its capture; but facts proved that the city had been rebuilt about B.C. 400, and again about B.C. 200. Dr. Schliemann then proceeded to state the details already published in the *Times* from his pen of what he had found below the ruins of the Hellenic city.

Some excellent addresses were afterwards made, notably by Lord Houghton and Mr. W. E. Gladstone. Mr. John Evans, Mr. C. K. Watson (secretary), Professor Sidney Colvin, and Mr. Watkiss Lloyd were amongst the speakers.

THE "BANQUE DE BELGIQUE," BRUSSELS.

THE CENTRAL BOULEVARD.

IN a recent number we gave some particulars of the new *Boulevard Centrale* in Brussels, and of the premiums which were offered by the Board of Works there for the best façades in the style of the Flemish Renaissance.* On that occasion we illustrated the elevation to which the second premium had been awarded, and we now give, according to promise, a view of the *Banque de Belgique*, which received the first premium. The façade is symmetrical, of good proportions, and exhibits considerable elegance. Its architect is M. Beyart, who has supervised the execution of his design in its smallest details. The building belongs, as already mentioned, to the Banque de Belgique, the same institution which by the great robbery of T'Kint de Roodenbeke (at present still awaiting his trial), and other manipulations and speculations which have yet to be submitted to judicial investigation, has been brought to a point when a liquidation seems hardly avoidable. *Sic transit gloria mundi!* The façade alone has cost more than 3,200*l.*

MORGAN HOSPITAL, DUNDEE.

DUNDEE has reason to thank the persistence of one or two of its citizens for the possession of what ought to be a very valuable educational institution—the Morgan Hospital. The circumstances attending its establishment are curious, and involve considerations of some importance. Mr. John Morgan, whose name it bears, died in Edinburgh on the 25th of August, 1850. On the death of his sister, on the 15th of January, 1848, certain writings were found in her repositories executed by her brother containing some personal bequests of small amount, and declaring it to be his wish that the bulk of his fortune should be employed to establish in Dundee, the place of his nativity, an institution for the education of boys on the model of Heriot's Hospital in Edinburgh. Previously to the death of his sister, Mr. Morgan had fallen into a state of mental imbecility, and a *curator bonis* was appointed by the Court of Session to take the management of his affairs. The writings alluded to passed into the hands of the curator. Having learned their import, the magistrates and town council of Dundee were naturally desirous of ascertaining their validity as testamentary deeds. It was known that Mr. Morgan had left a large fortune. Various parties came forward claiming to be "nearest of kin" to the deceased, and it soon became evident that their conflicting claims would not be settled without the intervention of judicial authority. In the first instance, he had determined to be the founder of a family. His fortune was to accumulate till it reached the sum of one million sterling, and then it was to be invested in the purchase of lands in the counties of Forfar or the Lothians. The estates were to be strictly entailed. The heir on possession was to assume the name of John Morgan, and Mr. Morgan actually selected a gentleman of his acquaintance on whose descendants this golden shower was destined to alight. This will, however, was most carefully obliterated by Mr. Morgan, so much so that it is difficult to decipher its contents, and by a writing subjoined to it he speedily annuls all its provisions. By this writing, dated the 10th of October, 1842, he declared his "wish to establish in the town of Dundee and shire of Forfar an hospital, strictly in size, the management of the interior of said hospital in every way as Heriot's Hospital in Edinburgh is conducted." On reflection, he got to think that his fortune, which had been impaired by losses through the failure of his agents in London and Calcutta, would be inadequate to the building and support of an institution projected on so large a scale as Heriot's Hospital in Edinburgh, and by a subsequent writing, dated October 20th, 1843, he restricts the hospital to such a size as shall accommodate only "100 boys in place of 180 boys." These two last writings, which are much altered and obliterated, formed the groundwork of litigation which subsisted for some years, and ended in their being declared by a judgment of the House of Lords to constitute a good and valid bequest of the fortune of John Morgan, or so much thereof as should be sufficient for the purpose of building and endowing a hospital for the education and maintenance of 100 boys in the town of Dundee. The litigation was long and disheartening, decisions for and against being alternately given. Meetings were held, money was subscribed, the case was carried on, and ultimately, as we have already said, the efforts of the town were successful. Mr. Morgan was upwards of eighty years of age when he altered his original writing, and struck out all that related to Heriot's Hospital. In doing this he also ran his pen through the two words, "an hospital," which referred to his intended establishment in Dundee, and not to Heriot's, as he evidently supposed. It was manifestly nothing more than a clerical error,—a slip of the pen. There are two well-established principles of law in the matter of testaments of personal property. The first is that where a party leaves a number of documents, all of a testamentary character, they must not be taken simply and separately, but must be all laid together; and, viewed as a whole, the light arising from one to be reflected upon the rest, and anything doubtful in one to be supplied by what is clear in the others, so that from a consideration of the whole the will or testamentary purpose of the party may be discovered and ascertained. The second principle is that in testamentary writings—at least in holograph testaments—the mind and intention of the testator is everything, the manner and form are nothing if only the real intention appear. On the strength of these two principles the advisers of the town rested, and the result showed they were right in their expectations. After the decision had been obtained, an estimate was made of the sum necessary for the maintenance of the establishment when in full work, and for erection of the building, and the sum of 73,500*l.* was invested for these purposes.

The expenditure was thus estimated:—

1. Feu duty per annum being for three acres instead of two as formerly proposed ...	£60	0	0
2. Head Master ...	200	0	0
3. Second Master, instead of 100*l.* formerly proposed ...	90	0	0
4. Third Master, instead of 80*l.* formerly proposed ...	70	0	0
5. Occasional tuition ...	50	0	0
6. Matron, instead of 50*l.* formerly proposed	45	0	0
7. Physician ...	25	0	0
8. Treasurer and Clerk ...	60	0	0
9. Auditor ...	10	10	0
10. Servants ...	94	0	0
11. Janitor and Gardener ...	40	0	0
12. Housekeeping, instead of 840*l.* formerly proposed ...	800	0	0
13. Clothing, instead of 400*l.* formerly proposed ...	383	15	0
14. Books and Stationery, instead of 50*l.* formerly proposed ...	40	0	0
15. Fire and light ...	90	0	0
16. Repairs ...	40	0	0
17. Taxes ...	30	0	0
18. Fire Insurance ...	14	8	8
19. Church seats ...	12	10	0
20. Extra expenses, such as duplicand of feu duty, travelling charges of visitors and inspector, printing and advertising, sick-bed and funeral expenses of boys, retiring allowances for masters, and general incidents ...	112	0	0
	4,267	3	0
Assuming that interest is to be at 3½ per cent. the capital sum required in order to produce the above annual income of 2,267*l.* 3*s.* ...	64,775	14	3
Add to which the estimated cost of buildings and furniture ... £13,503 0 0			
And the additional cost in enclosing walls and laying out ground occasioned by three acres being taken instead of two ... 150 0 0			
	13,653	0	0
Total sum required ...	£78,428	14	3

The difference between this and the sum invested, was met by the circumstance that the full expenditure was not required for four years.

After the appointment of trustees and governors, measures were taken for the construction of the hospital. A site was acquired on the estate of Craigie, lying to the north-east of the town, and a design, prepared by Messrs. Peddie & Kinnear, architects, Edinburgh, was approved of and adopted by the governors. The foundation-stone was laid, with Masonic honours, on the 30th of July, 1863. Unexpected causes of delay retarded the progress and completion of the work, but it went on gradually (forty boys being at first received), and is now completed. We give a view of the building. The site is nearly triangular, and forms a sort of gusset between the Forgar-road going north, and the old Arbroath-road, breaking off to the north-east. The gateway is at the junction of the two roads, and the enclosure walls extend about 250 yards along each road, the divergent lines being united by a wall of about 150 yards, forming the top of the inverted triangle. The ground enclosed measures about five acres. It slopes upwards from the entrance-gate, and the hospital is built on the upper and broader portion of the grounds. The design presents a building quadrangular in form, 200 ft. in breadth, 120 ft. in depth, with an open court inside. The style of the building may be called Flemish-Gothic, and it is two stories in height, with a centre tower rising to the height of 120 ft., and projecting a few feet from the façade. On the ground-floor it contains the main doorway, which is formed in a richly-moulded archway, surmounted by a crocketed label. Over the doorway, in the second story, is a three-light window, headed with cinquefoil tracery, and opening into a projecting balcony. On reaching the height of the ridge of the building, the intervening space being filled in with a clock, the tower is corbelled out at the angles into circular turrets, each capped with a steep slated roof. Connecting the turrets are carved balconies, also corbelled out from the main walls of the tower. From this point rises a steep roof, formed in two stages, and which exhibits in front a carved group of windows, surmounted by an ornamental gablet. The tower terminates in double pinnacles, united by an ornamental crest.

On each side of the tower the design exhibits bay windows in the second story, surmounted by steep crow-step gables. Extending on either side is a range of two light windows in both stories, the upper being finished by gablets flanked, and terminated by pinnacles. At the angles of the front the building throws out slightly projecting wings, with a triple square-headed window in the lower story, and with two traceried windows in the upper story, separated in a projecting ornamental chimney-shaft, which terminates in a crow-step gable. The gables of both wings are flanked by buttresses surmounted by shafts, terminating in carved pinnacles. The roof is of high pitch, and is finished by an elaborate iron cresting. The groups of tall chimney-stalks, rising at intervals from the roof, form an effective and characteristic feature of the design. The east elevation is of the same general character as the front, and is broken in the centre by two projecting gables, to the north of which is a section of the building, containing the dining-hall on the ground-floor, and the chapel in the upper floor. The chapel is marked by pointed and traceried windows, and from the roof springs a bell-tower, rising 32 ft. above the ridge of the roof. In the west elevation the leading feature is the staircase tower, which rises to the height of 80 ft. To the north of this tower is the head master's residence, which, in somewhat plainer style, preserves the general features of the building. The open court, which lights the buildings from the interior, is about 130 ft. by 50 ft. With regard to the internal arrangements of the building we may state generally that, in entering by the main doorway we find on the left the board-room, the library clerk's room, and matron's apartments; and on the right the master's and matron's dining-rooms, and a series of large class-rooms extending towards the dining-hall. In the upper floor are five dormitories, with an infirmary in the west wing, as also lavatories and bath-room.

According to the scheme for the erection and endowment of the hospital, the funds are vested in the following persons, viz.:—The Provost of Dundee, the Sheriff of Forfarshire, one of the Sheriff Substitutes of Forfarshire to be named by the Sheriff, the Dean of Guild of Dundee, and the Convenor of the nine incorporated Trades of Dundee,—all for the time being as trustees for the establishment, endowment, and maintenance in all time coming of a hospital in Dundee for

* See pp. 264, 265.

the education, lodging, boarding, and clothing 100 boys, the sons of tradesmen, mechanics, and persons of the working-class generally whose parents stand in need of assistance to educate their families or who are orphans in need of such assistance. The governors who have the management of the hospital are twenty in number. No boy is admitted into the hospital until he has attained the age of seven years nor after he has attained the age of nine years, and no boy is permitted to continue in the hospital after he has attained the age of fourteen years complete. In order to the admission of any boy it must be shown that either the father or mother of the boy is (or, if dead, was) an inhabitant of, and born and educated in, one or other of the towns of Dundee, Forfar, Arbroath, or Montrose; but the sons of persons inhabitants of and born and educated in Dundee have the preference. There is this valuable stipulation, that every boy beyond the age of nine years shall attend for a certain number of hours during each week a class for instruction in one or other of the trades of a tailor, shoemaker, or carpenter, or such other branch of industrial employment as the governors shall direct, and the governors are to appoint suitable instructors in every such trade or employment, and it is competent to the governors on occasion of any boy leaving the hospital, to permit such boy, as a reward for good conduct, to receive the whole or any part of the profits of his work during the preceding year. The scheme stipulates that the head-master shall receive an annual salary of not less than 200l., besides the use of a free house attached to the hospital, with coals, gas, and water. The hospital is to be inspected once at least in every year by an educational inspector of known experience, character, and ability, who is to test the efficiency of the teaching and progress of the boys.

It is to be hoped the time will not come when the masters, the matron, and the treasurer, are more cared for than the scholars, and the testator's gift perverted to the maintenance of a few friends of the governors for the time being. Such things have been and are.

THE PRESENT STATE OF INDUSTRIAL ART.

CITY AND SPITALFIELDS SCHOOL OF ART.

MR. CHARLES L. EASTLAKE on the 22nd inst. delivered the last of a series of four lectures* in connexion with the City and Spitalfields School of Art. The large hall in Skinner-street, Bishopsgate, was not, unfortunately, one-twentieth part full, doubtless owing to the very inclement weather which prevailed at the time. The lecturer premised that he adopted the term "industrial art" as one which modern custom had recognised, and which was commonly accepted in the present day, rather than because it was appropriate or satisfactory. We had been in the habit, for two or three generations past, of dividing art into several sections, and of giving them grand names, such as "high art," "Fine art," "pictorial art," "fictile art," "ceramic art," "industral art," and what not. Of these, some had been foolishly overrated on sentimental grounds, and others had been as foolishly underrated on ignorant grounds. Curiously enough, all these fine names were invented or adopted during a period when taste in art had sunk in this country to the lowest standard which it ever reached since civilisation began,—*i.e.*, in the early part of the present century. During that period the arts of manufacture sank lower and lower in character of design, and, as a matter of consequence, in quality of execution,—for, speaking generally, the worst taste in manufacture was generally found in articles of flimsy workmanship, and the best taste in those of sound, honest handicraft. The cause of the decadence of what, for the sake of convenience, might be called the "industrial art" was due to the fact that the connoisseurs of our grandfathers' time failed to encourage excellence in contemporary work; they were content to hoard up examples of a bygone age for the mere sake of their rarity, or for their market value. A genuine love of art, whether in a nation or as an individual characteristic, should represent something more than the wealth of a museum or the pride of a collector. It should reach and invest with interest the home of every householder throughout the land. Lord Macaulay had made scornful allusion to that absurd phrase, "the dignity of history," and pointed out that a history which did not include some notice of the domestic life of our ancestors would be no history at all. There was an equally absurd phrase of recent origin, and which was equally open to ridicule, viz., "the dignity of art." That expression, as commonly understood, meant that art was a luxury only to be enjoyed by the wealthy and highly cultivated; that it was the special property of the collector or the *savant*; and that those who could not afford to buy expensive pictures and rare specimens of bric-à-brac must be content with ugly houses and commonplace furniture. It was to be hoped that this melancholy and selfish creed was dying out in this country, but while a vestige of it remained there would be little chance of real improvement in national taste. It was precisely because art had been looked upon in this light, and talked of as something beyond the reach and appreciation of the people, that the people had grown indifferent to it, and had come to regard it as a thing of the past. It was, of course, difficult for us in these days to ascertain how far the working classes of any nation in bygone times had enjoyed the highest and most refined achievements of art; but one thing was certain, that down to the end of the seventeenth century the difference between what we now called "high art" and the ordinary arts of manufacture was only a difference of degree and quality, not one of style. How the line came to be drawn between "high art" in some quarters and no art at all in others was a very complex question; but among the causes which had led to this result were the progress of education and the rapid increase of wealth which had taken place within the last century. This might sound rather startling, but there was really no cause for alarm, for the social progress of a nation was of infinitely more importance than the improvement of public taste; and if one had interfered with the other for a while it only remained for the present generation to devise some means by which these two objects could be attained at one and the same time. In former days, the habits of the working classes were far simpler and more domesticated than they were at the present day. Men who in country towns and villages plied their trades as joiners, weavers, blacksmiths, or what not, were content to work as their fathers and grandfathers did before them, and generally brought up one or more of their sons to the same business. In this way the traditions of their craft, whether in regard to design, technical knowledge of material, or method of work, were preserved, and as all these improved with experience, it might be supposed that the result was most beneficial to every branch of industrial art. But, by and by, many changes came about. Railroads were laid down, schools were set up, cheap newspapers were circulated. Some of these honest folks began to get ambitious. They travelled, they read the papers, they sent their boys to school. All this cost money, and the consequence was they were obliged to do more work in the same time. Of course the work was hurried and not so well done. The sons of these men, being better educated than their fathers, began to grow conceited, and looked down upon their fathers' work. Sometimes they went off to "better themselves," and were replaced by journeymen, who, being paid by the day, and having no interest in the business, naturally thought more of their wages than of their work, and moved from place to place whenever they saw a prospect of higher pay, leaving the work to fresh and inexperienced hands. Nor was this all. As work went on increasing for the sake of wage, population went on increasing too, and, unfortunately, at a far greater rate than money. Provisions, clothes, and many of the essentials of life became dearer. More work became necessary to pay for them, and at length masters themselves began to consider how they could execute the same amount of work with less trouble, or a greater amount of work at a cheaper rate. The result of all this was to substitute an inferior class of handicraft and material. Cast iron took the place of wrought. In joinery, mouldings, instead of being worked in the solid, were run out by machinery and planted on. Common druggets were printed in imitation of woven carpets. Brickwork was "scamped" and plastered over with stucco or cement, in imitation of stone; deal was grained in imitation of oak or marble; crockery, which had been formerly painted by hand, was decorated with printed patterns. Much of this work and many of these articles being, of course, cheaper than what had formerly been produced, suited the pockets of pretentious people, who liked to make a show at a small cost, and the consequence was a gradual increase of demand for what the lecturer ventured to call "cheap and nasty" work, and a neglect of those honest trades which were once the pride of the British workman. The traditions of some few, indeed, had survived, probably because no shams could possibly be practised in them without at once rendering the article produced useless for its purpose. The lecturer knew no specimen of native manufacture more satisfactory in construction nor more picturesque in appearance, than a rustic cart. It was always solidly made of stout timber and well-hammered iron. Such little graces of decoration as its purpose admitted, in the way of turned woodwork, chamfered edges, or applied colour, were simple and unaffected. It served its object well and honestly, and had filled the page of many an artist's sketch-book; and yet the maker of the cart may perhaps have never learned to read or write, and knew no more of industrial art than he did of the differential calculus. That was the kind of work which we should try and revive in this country; that was the kind of work which no school of design could improve. It was a fallacy to suppose that the progress of good taste in manufacture must necessarily go hand in hand with what used to be called "the march of intellect." The very fact that we had learnt so much, that we had brought before us so constantly at International Exhibitions and by means of published works, specimens of the art of other nations, puzzled the designer as to choice of style, and made him borrow a hint from this and a trick from that school of taste. Conditions of form and schemes of colour which properly belonged to one branch of manufacture were too often imported into another, and we might congratulate ourselves if the result were not a hopeless jumble of ill-assorted materials, misapplied ornament, and inappropriate construction. How could we escape from these difficulties? It was easy to say, "Go to the South Kensington Museum and study the best examples of ancient art," but the lecturer could not fancy a more bewildering task for the student,—he was speaking of beginners, of course,—than to wander through that palace of countless treasures (including specimens, good, bad, and indifferent, of every age and nation) in the hope of improving his taste. True, he might join the schools and study types of ornament, but the study of ornament in the abstract, and without an adequate knowledge of the mode in which that ornament should be applied, might teach him to draw indeed, but would never teach him to design. The lecturer would rather say: Make up your mind to study one branch of manufacture at one time, and ascertain, as you may easily do, the best period and most notable country for that manufacture. Choose the simplest objects first, and draw them (he assumed that the student had learnt to draw) geometrically, giving an accurate profile of every vase or casket, mapping out the ornament on its surface, and making memoranda of any colour decoration. In furniture and metal-work examine carefully the construction of the objects, and plan it where possible, showing every joint and rivet. Make full-sized sections of the mouldings, and figure every dimension on the spot. In stained glass note the disposition of the lead-lines, and in woven fabrics the direction of the threads, with as much care as you bestow on the figures or patterns themselves. Studies such as these will be of more value for future reference, and of far more help towards mastering the proportions of design and technical details of manufacture, than any perspective sketches, however elaborate. In selecting objects of ancient manufacture for this purpose, Mr. Eastlake recommended students to choose those which in some form or other are still serviceable under the conditions of modern life, and which a shopkeeper would find saleable if reproduced for modern households. There were hundreds of such articles now exhibited in our museums, and it had always been a matter of astonishment to the lecturer that manufacturers, who at a trifling cost might provide themselves with models or drawings of these objects for imitation, preferred to bring out year after year what they called "novelties," and which, while de-

* Of the lecture given by Mr. T. Chatfeild Clarke on "Florence and Michelangelo," we gave a report a fortnight ago (p. 270). This, however, was not the first lecture of the series, as stated, but the second, the first one having been on "An Art Student's Prospects," delivered by Mr. N. H. J. Westlake, F.S.A., on the 1st inst. The third lecture was given by Mr. G. Aitchison, B.A., on "Ornament and Colour."

parting widely from the ordinary types of form recognised by custom, were far from realising the grace of ancient art. In cabinet-work, however, there had been a marked improvement of late years. The coarse carving and lumpy machine-made ornament which disgraced our furniture some twenty or thirty years ago were being gradually replaced by delicate mouldings and graceful inlay. In curtain-stuffs and printed goods there had been a still greater advance as to quality of design, and this in regard not only to the form of pattern, but to the scheme of colour adopted. In textile fabrics, paper-hangings, and the surface-patterns of pottery and china, a great change had taken place within the last few years, viz., the substitution of natural forms of ornament, chiefly borrowed from vegetable life, for the geometrical patterns and diapers which were once in vogue. This change was no doubt due to a reaction in architectural taste from Mediæval types to those which prevailed during the seventeenth and eighteenth centuries. The change was gradually affecting the character of design in all branches of industrial art, and would necessitate more than ever on the part of designers a study of natural forms in plants, animal life, and, indeed, of the human figure itself. Among other branches of industrial art, there were three which deserved especial mention, viz., stained glass, ornamental metal-work, and the manufacture of pottery and porcelain, each of which had within the present generation been marked by extraordinary improvement, either in design or manufacture, though not to an equal extent in both. In concluding his lecture (of which the foregoing is but an abstract) Mr. Eastlake recorded his conviction that the time had arrived when the public of this country were becoming sincerely interested in the progress of "household taste," and that it would rest with designers educated in our schools of art to determine by their efforts the direction which that taste should take, and the success by which its development might be attended.

On the motion of the Rev. W. Rogers, the thanks of the meeting were given to Mr. Eastlake for his lecture.

THE USE OF MACHINERY IN ITS RELATION TO ARTISTIC PRODUCTIONS.

IN presiding, on the 21st inst., at the annual *conversasione* of the Sheffield School of Art, Mr. William Bragge, F.S.A., took for the subject of his discourse "The Use of Machinery in its Relation to Artistic Productions."

Mr. Bragge said, at the end of last year Mr. Poynter, the president of the art section of the Social Science Congress, held at Liverpool, in his address to the Congress, objected to the "Castellani" collection of Italian jewelry being sent to Birmingham on loan, because cheap and inferior copies would there be made mechanically, and in this objection Mr. Poynter embodied and expressed a very common idea,—that mechanical work cannot be artistic work. How far this is true I shall endeavour briefly to show, and I may at once state that I shall claim for all mechanical appliances the right and privilege of assisting in our art manufactures. I am prepared at once to admit that the enormous industrial progress of this country during the present century has really done very little for art. Our manufacturers have, almost to the present time, given their whole attention to economy and rapidity of production, and the public taste has not been elevated by the style of the articles produced. But allowing that in the past, and even at the present time, the taste and skill of the artist have been lost,—sacrificed to the ingenuity and contrivances of the mechanican,—we surely need not conclude that art cannot become an ordinary adjunct to mechanical reproduction. We know well that in many manufactures carried on by us to-day our best models in design, as well as in material, are those bequeathed to us by workers who lived centuries ago, whose mechanical appliances were of the simplest and rudest character; and it is with some sense of humiliation that we are bound to confess ourselves unable to equal not merely the works of three or four centuries ago of European civilisation, but even of those of the present day, produced by nations which we are conceited enough to call savage. Let us take a few examples of the arts and manufactures of old time and compare them with those of the present day. Have we improved in the art of printing since its invention, 400 years ago? or in the art of paper-making of 600 years ago? In quality, certainly not; but we are bound to remember that to-day an ordinary edition of a newspaper is printed on both sides in quality sufficient to cover an acre, in the same or less time than Caxton or Guttenberg required for the production of a single sheet. We produce paper now in continuous rolls of many hundreds of yards in length, and with a rapidity commensurate with the voracious requirements of the steam printing-press; but no paper now in general use (excepting bank-note paper) equals in quality that upon which our early books are printed. Most of the books printed of late are, I think, likely to be entirely lost within a century, simply from the natural decay of the (so-called) paper upon which they are printed. But we can to-day buy a newspaper for a penny or a book for a shilling, which in Caxton's time would have cost fifty or a hundred times as much. We can and do engrave dies and coin money for all the world, but we cannot produce anything comparable with the exquisite coins of ancient Greece. We can imitate in a feeble way the cameos and intaglios of the stone engravers of ancient Rome; but this is an art almost unpractised amongst us, and so far as we are concerned artistically, it is practically lost. In ornamental enamel we must go to China and Japan for our models, as Messrs. Elkington have wisely done, and then find out by painful experience how best to copy the humbler objects, before daring to imitate the more important. Our English enamelling of to-day is confined pretty closely to the decoration of mayors' chains, Masonic emblems, and the lining of iron pots and pans. The art of lacemaking, or ornamental needlework,—in Mediæval times one of the most general occupations of women of every rank above the lowest,—is now almost entirely lost, and we must go to our museums to see the charming examples of taste in design and perfection in work which still remain for us to admire. The hand-made lace will bear microscopic examination, consumed much time and patience in its production, and was consequently very costly. Now-a-days one can buy in Nottingham embroidered curtains enough to furnish a house for less money than a collar of ancient point lace would cost. I might indefinitely prolong this list, and point out to you the comparatively lost arts of damasquining, or inlaying iron and steel with the precious metals; of the special forging of sword-blades in Damascus and Toledo to produce the twist in the fibre, so to speak, of the metal; of the remarkable skill in perforating steel and brass as a decoration of useful objects practised in Persia; of the marvels of design, colour, and glaze of early Italian pottery or majolica; of the exquisite glass and mosaics of Venice; the gold and silver smiths' work of Italy; the shawls of Cashmere and textile fabrics generally of India; but further instances are not needed, and you will, I think, agree with that which is a commonly accepted opinion, that in all these, and in many other artistic, manufactures, we, the English, are now utterly unable to compete. I have not made in the foregoing remarks any reference to painting and sculpture, because these arts stand outside of the reach of mechanical appliances, and therefore the painter and sculptor of to-day are in this respect in the same position as were Apelles and Phidias, Titian and Michelangelo; and now we may proceed to consider what is the real or supposed antagonism between art as developed in individual workmanship, and as accompanied, or assisted, by mechanical appliances. If we fairly compare the art of, say, the goldsmith or silversmith of three centuries ago with the art of to-day, we find that the workman then lived and worked under influences and incitements which have long ceased to exist. The Mediæval workman thought and cared only for the single object upon which he was employed. He threw his whole soul, his whole inventive faculty, his whole technical skill, into his darling work, and he knew that no meaner hand could rob him of the fruits of his patient labour and skill. He was not hurried with his work. He had no anxieties as to cost. His master, if he had one, was not perpetually crying out for the economies of labour and of material, no estimates had been given which could not be exceeded, and no arbitrary percentage of profit had been beforehand fixed. Is it extraordinary that under such favourable conditions the workman should produce his best? Certainly not, and we ought to be profoundly thankful that the results of such a state of things have been preserved to us for our special instruction. How does the working gold or silver smith of to-day stand in relation to his work as compared with his predecessor of three centuries ago? Truly in a miserable plight! Instead of being himself the creator of the design he has to carry out, it has probably been prepared for him in an office where the commercial economy of manufacture is more considered than the principles of art, where facility of production is held to be more important than elegance of form, and where the demands of the Demon of Fashion override the desires of good taste. All the patient labour of hammer and chisel, slowly and surely giving expression to the taste of the individual, are dispensed with now, and are replaced by a few blows of the stamping-machine! This stamping-machine or press has taken the place of hand labour, and being only a machine, it is perfectly indifferent whether the work it is called upon to do is in good or in bad taste. It is as willing to work for the demon of ugliness as for the spirits of beauty, and the work which it produces is simply a reflex of the mind, and taste, and quality of its employer. It is unfair to charge the mechanical appliances of manufacture with having caused a degradation of taste. The degraded taste existed when machines were first employed, and, unfortunately the process of refining and improving the artistic feeling of the public has been hindered by the cheap and ugly mechanical productions. If the modeller will only produce moulds worthy of admiration, the stamping-press is at his command to bring under the daily notice of every one the forms of beauty which he has himself designed. We cannot, if we would, go back to Mediæval habits of thought or modes of work, and those who to-day would abolish all mechanism in art-manufacture would injure instead of helping their cause. The patience and skill of the modeller and chaser who wishes to devote months or years to the production of a master-piece can still be given. He remains free to use his time and talents as he thinks best, and happily there is yet a demand for works of a high class in the production of which such men may be congenially employed. In this wealthy and art-loving country there is abundant occupation for the most skilful artists. Nothing that is really good fails to find a ready purchaser, and talent has to-day as fair a field before it as it ever had in days gone by. The gifts of corporate or public bodies to men who deserve honour,—the production of prizes for excellence in exhibitions, for racing, or boating, or yachting; the demand of the wealthy for specialities, designed for themselves, ensure for the conscientious workman full scope for his talents. And I am sorry to be compelled to think that this special work is more than enough to occupy all the competent workmen who can be found. In the production of such works machinery and mechanical reproduction have no part, they stand as individual works, each wrought out by a master mind, to fulfil a single purpose, and to satisfy a personal want. But can the requirements of the million be dealt with in this aristocratic manner? Certainly not. For their wants every element of economy must be utilised, the means of production must be assisted by all the resources of mechanical science. The absolute perfection of detail must of necessity be given up, but there is absolutely no reason why a high standard of excellence should not be preserved. Our jewelry, our gas-fittings, our table services, whether of silver, silver-plate, or other metals; our trays, coal-scuttles, fenders, and grates, and everything else which forms a part of our domestic surrounding, may as cheaply be made elegant as ugly. The use of machinery has only to be wisely and thoughtfully adapted, governed by artistic principles, and its result will be to give to the world in its cheapest form the useful and the beautiful. To the working out of this desirable end, I commend you, the students of the Sheffield School of Art.

The New Divinity School, Cambridge.—The syndicate have recommended that the tender of Mr. Loveday, of Kibworth, Leicestershire, who has executed several building works in Cambridge and the neighbourhood, be accepted. The tender was the lowest of five sent in, and amounts, for the whole of the works, in accordance with the plans and drawings of Mr. Champneys, the selected architect, to 11,977*l*.

THE TRANSPORT OF "CLEOPATRA'S NEEDLE."

AT a meeting of the Civil and Mechanical Engineers' Society, held on the 15th inst., in the hall of the Institution of Surveyors, Great George-street (by permission of the Council), Mr. R. M. Bancroft, president, in the chair, an interesting lecture on "The Means of Transport from Egypt, and the Erection in London, of Cleopatra's Needle," was given by Mr. John Dixon, C.E., who has undertaken to bring the obelisk to England.

Mr. Dixon commenced by observing that the obelisk known as "Cleopatra's Needle" was of great historical interest, because it had sculptured upon it the history of the man who quarried it from the old quarries of Syene (the modern Assouan), and the reason why he quarried it. There were few monuments extant, so far as we knew, which could, like this, date back 3,400 years. In addition to its historical interest, however, the obelisk in question was of interest to engineers, in consideration of the means which were resorted to in order to quarry and transport in safety such huge monoliths. Cleopatra's Needle was not alone among obelisks, and possessed no peculiar features. In point of size, it stood only about eighth or ninth on the list of obelisks with which we were acquainted. The largest of which we knew was the Lateran Obelisk in Rome, which was brought by the Romans, with about twenty smaller ones, from Egypt, as the most curious objects they could lay hold of to decorate their imperial city. The Lateran Obelisk had a height of something like 90 ft., and was 10 ft. 6 in. square at the base, whereas Cleopatra's Needle was only 69 ft. 3 in. high, with a base of 7 ft. square. Ten years ago, when the lecturer was in Egypt, his attention was especially directed to this obelisk, which he saw lying in the sand on the shore at Alexandria. He dug around it and under it for the purpose of examining it, and it appeared to be little the worse for wear except that two of its sides were somewhat weatherworn, and did not retain the polish which still existed on the other two sides. Nevertheless, the hieroglyphic inscriptions were quite distinct enough to be read by the learned in those matters, and it therefore retained its history as clearly as on the day when it was set up by Thothmes III., *circa* 1400 B.C. Egypt in those days was the leading country of the world, not only in arts and commerce, but in learning and science, and to her great university of Heliopolis came Strabo, Pliny, Herodotus, and others. Thothmes went to the old quarries of Syene for the material of his obelisks. From these quarries for generations before him the Egyptians had been accustomed to sculpture those great blocks of granite which even to this day were our wonder and admiration. The granite of Syene was micaceous and somewhat coarse in texture and pinkish in colour, and in the quarries to the present day there existed an obelisk, half cut out, much larger than any other we knew of. That obelisk, if it had ever been completely quarried and set up, would have been 96 ft. high and about 11 ft. square at the base. The proportion of height of these obelisks to the square of base was generally about 10 to 1, or, in other words, the height was about ten times the square of the base. The hieroglyphics on "Cleopatra's Needle" were from 2 ft. to 3 ft. long, cut 2 in. deep and 3 in. or 4 in. broad, so that they could be read from a distance of fifty or sixty yards. The inscription, besides recording the virtues and power of Thothmes, recorded that the obelisk when set up was tipped with gold. This feature was of course gone, but there was a slight ledge round the point at the top which was no doubt made to receive a gold tip, or one of bronze gilt. On the top of the obelisk of Luxor at Paris, which the French brought from Egypt, there was a similar ledge or groove. The inscription on Cleopatra's Needle did not say in what city that obelisk was set up. Some accounts had it that it was first erected at Thebes, and was afterwards removed by Ramesis to Memphis. Be that as it might, it was ultimately removed to the ancient city of Heliopolis. The site of that city, once the Oxford and Cambridge of the world, and at that time, it may be presumed, covered with magnificent buildings, now presented one of the most astounding spectacles which could be witnessed. Nothing remained but a green plain, in the centre of which was a solitary obelisk, opposite to which once stood the stone now known as "Cleopatra's Needle." The latter was subsequently removed to Alexandria. How it came to be thrown down in its present position nobody knew. It had been conjectured that an earthquake was the cause of its overthrow, but it was much more likely, Mr. Dixon thought, that it was thrown down to get at the bronze tortoises on which it was believed all these obelisks were placed. In 1798 the French conquered Egypt, and they laid their hands on everything that was valuable or invaluable in the country. They carried off an enormous quantity of Egyptian remains, and they proposed to carry off the Rosetta stone (now in the British Museum), Cleopatra's Needle, and other antiquities. Before they could do so, however, they were driven out of Egypt by the English, and at the conclusion of that brilliant campaign, in which Sir Ralph Abercrombie fell, a great effort was made to secure Cleopatra's Needle, which would when erected in London, form a fitting monument of one of the most brilliant campaigns in which English arms had ever been engaged. The army subscribed four or five days' pay, and, assisted by the navy, took steps to remove the obelisk. They had hardly commenced, however, ere the red-tape and pipeclay of those days sent forth an order to desist in the attempt, as such work would be destructive of discipline and of the accoutrements of the men. So the obelisk remained where it was. When Mehemet Ali assumed the reins of power, he, wishing to please George III., presented the Rosetta stone and many of the principal objects in the Egyptian Court of the British Museum, together with Cleopatra's Needle, to the English nation. The British Government, however, had always declined meddling with this obelisk, although repeatedly urged to bring it over. The expense involved was made the great obstacle, although even so utilitarian a man as Joseph Hume proposed to spend the national money in bringing over the obelisk, and contended that the money would be well spent for such an object. The cost of bringing over the obelisk has been estimated in years gone by at 100,000*l*., but Mr. Dixon said he was confident that the cost would not exceed one-eighth or one-tenth of that sum. Eventually the British Government had renounced the gift. Recently, as was well known, Dr. Erasmus Wilson, F.R.S., had munificently come forward and had offered to find the money if Mr. Dixon would undertake the engineering details involved in the transport of the obelisk to England. That offer had been accepted. The Khedive, on being spoken to on the subject by Mr. Fowler, his Highness's chief engineer, and who was now in Egypt, said he should be pleased to see the obelisk removed to England if the Government would accept it on behalf of the nation. This the Government had consented to do, and it had again been presented to England through our Consul-General in Egypt. Nothing now remained, therefore, but to remove the obelisk to England. The stone was at present lying embedded in the sand on the shore of Canopus Bay, to the east of Alexandria. It was parallel to, and not far from the water-line, which washed the foot of a quay-wall backed up by the sand in which the obelisk was buried. The water was very shallow for a considerable distance out, and its bed was of rock covered with a fine sand, so that to dredge or excavate a channel for a vessel to come alongside the quay-wall and take the obelisk on board would involve an outlay of 50,000*l*. or more. It would also be impossible to make a mole on which to convey the obelisk out to a vessel lying in deep water, simply because there was no material available, and even were there material, the length of mole required would necessitate an outlay of at least 30,000*l*. Neither of these plans was available. What was proposed to be done was simply to excavate about the obelisk, and to build around it a huge iron cylinder or boiler, so to speak, 95 ft. long and 15 ft. in diameter. In the first instance there would be constructed around the obelisk, 10 ft. apart, about seven diaphragms, discs, or collars, so to call them, circular on plan, and with square apertures in the centre through which the obelisk passed and would be held in position by wedges and other appliances so disposed and arranged as to prevent any excess of strain being brought to bear on the monolith under any circumstances, whether the cylinder containing it were held up in the centre on the crest of a wave or at each end by two waves without any support in the centre. To these diaphragms or collars would be built longitudinal girders and framing, which would in their turn carry concentric ribs of iron to receive the external skin of plate iron. The obelisk will be disposed as nearly as possible in the centre of this cylinder, which will have both its ends pinched up, so to speak, in wedge-form, to serve as bow and stern. On the side of the cylinder which is intended to remain uppermost manholes will be left for taking in ballast. The weight of the obelisk is about 183 tons. The cylinder, when completed, will be rolled out in the shallow water until it floats, being previously covered with a stout jacketing of timber-work, in order to prevent the possibility of its being damaged by any sharp pieces of rock which it may roll over. When the cylinder is in deep water it will be towed into the Khedive's dry dock at Alexandria, where the wooden jacketing will be stripped off; one of the wedge-shaped ends will be provided with a rudder, and the cylinder will be fitted with two bilge-keels and a small platform or deck, thus becoming a cylinder ship. It will be named the *Cleopatra*. Ballast will be taken on board to give the whole greater stability, which would have been secured, if the obelisk could have been taken on board an ordinary vessel, by placing the load nearer to the bottom than in the present case, where, in order to facilitate the rolling of the cylinder, the obelisk is to be placed in the centre. All being ready and the weather favourable, the cylinder and its contents would be towed to England. Mr. Dixon went into details to show the stability of the vessel, as to which every care had been taken, seeing that not only was the safety of the obelisk involved, but the credit of English engineering was at stake. The plans of the vessel had been approved by Mr. Froude and other authorities on the subject of naval architecture. Having reached the Thames it would be towed to that part of the Embankment wall nearest to the site which might be selected, and at high tide would be floated on to a staging or gridiron of timber constructed to receive it. When the tide receded the cylinder would be left high and dry, and would then be raised by hydraulic power until the level of the embankment was reached. The keels, deck, and other excrescences having been removed, and the ballast taken out, the cylinder would be rolled across the Embankment to the site the obelisk was intended to occupy, where the cylinder would be broken up and removed to the scrap-heap. Then came the question of raising the obelisk into an upright position on its pedestal. The Romans, and, later, the French, had pulled their obelisks up by ropes, but that plan necessitated a large number of capstans and other appliances. Mr. Dixon proposed to raise Cleopatra's needle in the following manner: Having brought the centre of the obelisk over the exact site it was to stand upon, he should put round the central 4 ft. or 5 ft. an iron jacket, or, more properly speaking, a pair of iron stays capable of being so tightly laced or screwed up as to prevent the stone from slipping. On the centres of two of its sides this jacket would have projecting trunnions capable of bearing the whole weight of the obelisk. The obelisk would then be gradually raised by hydraulic power, applied at each end alternately, and as it was raised a scaffold or staging of baulks of timber would be gradually built under it, the obelisk still lying in a horizontal position. When the timber staging had reached the required height, two iron girders would be placed parallel with the obelisk. Upon these girders would rest the trunnions before referred to, and the girders, resting upon the end portions of the timber-staging, would allow of the central portion of the staging being removed, so that the obelisk would swing nicely balanced on the trunnions, the bottom of the obelisk just clearing the stone on which it was to rest, and from that position could be easily lowered into its place by the lowering of the girders to a slight extent. One advantage of this plan was that on a bright moonlight night the stone could be experimentally lowered on to its pedestal to ascertain whether everything was right, and could then be pulled up again ready for the public ceremony. The lecture, which was illustrated by large plans on the walls, and by a model of the proposed cylinder-ship, attracted an unusually large audience, and an interesting discussion ensued.

Casting.—A large equestrian statue of Lord Canning, a memorial of his Governor-Generalship of India, was cast on Saturday, the 24th inst., by Messrs. Masefield & Co., at their works, Manor-street, Chelsea.

DRAWING IN ELEMENTARY SCHOOLS.

ON the 12th inst. a periodical competition in drawing was conducted in the elementary schools throughout the country that are aided and inspected under the Minutes of the Committee of Council on Education. The object of having the examination in drawing, which then took place, simultaneous throughout the country, is obvious, —prevention of "coaching," or communication of the subjects of the exercises.

By a Minute of the Committee of Council of the 9th of January, 1865, the examination in drawing in elementary day-schools is conducted by the managers of such schools. In Board schools,—those of the London School Board, at least,—the teaching of drawing is obligatory; in some other schools, receiving Government grant, the teaching of drawing is optional on the part of the managers. The following particulars refer to a London Board school, and would apply, for the greater part, it is believed, to many others.

The direction of the teaching of drawing in elementary schools is solely in the hands of the Science and Art Department of the Committee of Council on Education, South Kensington, which also directs the examination in May of such pupil teachers as have attended schools of art or art classes, and desire to present themselves for examination. The Department supplies the schools with suitable progressive lessons for the course of instruction in drawing throughout the year, and the test exercise papers for the annual examination held in March. In London Board School drawing examinations, the managers are usually deputies, persons who are considered "responsible and competent," who a few weeks before the examination are requested to accept the duty. If they do so, their names, &c., are transmitted to the clerk of the Board, and certified by him, if he think proper; the names are next forwarded to the Department and approved, if they, in their turn, think proper. Prior to the examination arrangements are made for a supply of the requisite number of examination papers. The managers have notice to attend at 9.45 on the morning of the examination. They then receive a sealed bag containing the necessary papers; the boys, or girls, as the case may be, are arranged in their places; the seal is broken, the papers are distributed, and the work commences. In the ordinary school-course the scholars are taught in groups ranging to six standards; in drawing there are but two grades. Only a portion of the pupil teachers, and a comparatively small number of the boys in the fifth and sixth standards, reach the second grade in drawing. The examination papers distributed to the scholars of the first grade consist of floral and classical subjects, such as winged bases, centre-pieces, the lyre, and a variety of artistically-arranged and connected curved lines, not easily described. The second set of papers distributed to scholars of the first grade were in practical geometry,—lessons embracing certain combinations of six elementary geometrical figures, — the line, the plane the circle, the cylinder, the cone, and the sphere. The third paper supplied to the scholars of the first grade is a *tabula rasa*, excepting the instructions printed on the top and on the back; it is for drawings from objects or models. The free-hand candidates of the first grade were allowed forty minutes to make their drawing; whereas their seniors of the second grade who chose free-hand drawing were allowed an hour and a half for a subject little, if it all, more difficult. In the free-hand exercises the drawings have to be in some cases a little larger, and in others rather smaller, than the drawing copied. The first-grade boys belonged to the first four standards, a majority of them to standard 1, and were from eight to ten years of age. Only six of the second grade went in for free-hand drawing, and two of these were pupil teachers. Two pupil teachers executed very good drawings from objects,—a table, and on it a box, a bowl, and a bottle, lying at an angle, with the neck resting upon the top of the box. The combination of lines, angles, curves, and the varieties of light and shade were embarrassing, but the difficulties were cleverly dealt with. Another pupil-teacher had a good perspective drawing, for which an hour and a half was allowed. The drawings from objects had to be finished, or left unfinished, on the expiry of an hour. When the time had run out for the completion of the last papers, it was the duty of the managers to collect and carefully count the whole, replace them in the bag with such papers as had not been used, to seal and at once post the bag to the Science and Art Department, South Kensington, inclosing with the papers their certificate that the exercises had been worked in their presence "without any assistance from books or notes, from each other, or from any other person." The certificate contains other particulars, including the statement of the number of individual candidates, distinguishing between first and second grades, and separating pupil teachers or paid monitors from scholars. The certificate is signed by the whole of the so-called managers, of whom there should be as many as will provide two for each separate room, in which the so-called examination takes place. "Managers" and "Examination" are misnomers, the examination is really at South Kensington, whither the papers are sent, and the managers are put there merely to "watch the case" and keep order. The rules for conducting the proceedings are, on some points, very stringent, but not unduly so. In freehand and model drawing no ruling, measuring, tracing, or other mechanical means of execution is permitted. The geometrical papers are of three kinds, so sorted and given out that the scholars sitting next to each other have different exercises and problems. The teacher of drawing is strictly prohibited from entering the room after the examination papers are opened, on pain of the examination being declared null.

The payments made by the Science and Art Department for drawing are,—1s. for every scholar who gives satisfactory evidence of having been taught drawing; 1s. 6d. for every exercise of the first grade in which a scholar shows proficiency; 2s. 6d. for every exercise of the first grade in which a scholar excels; 5s. for every exercise of the second grade in which a scholar is successful; 10s. for every exercise of the second grade satisfactorily worked by a pupil teacher who has been taught drawing in the school; and 1*l.* towards the expenses of the annual examination, provided that at least twenty scholars give satisfactory evidence of having been taught drawing in the school. Prizes are awarded to every scholar of the first grade whose drawings reach the standard of excellence, and to every pupil teacher of the second grade who excels in second-grade drawing. Aid is given towards instruction in drawing in elementary schools in various other ways by the Department. To be eligible to aid it is a *sine qud non* that the school payments in respect of ordinary instruction must not exceed 9d. a week.

The highest prizes, of which few are awarded in Board schools, consist of valuable books in geometry, perspective, ornaments, and outlines, projection of shadows, botany, drawing for machinists, &c. The prizes that are awarded, almost entirely to scholars of the first grade, consist of drawing board and T square, compasses and angles, boxes of water-colours, &c.

In the boys' school to which these notes refer, fourteen prizes were last year awarded to scholars of the first grade for excellence; thirty-five had certificates for proficiency; and 160 passed. In the second grade, there were only two passes. This gives 211 papers in all that were passed by the examiners, the number being exclusive, of course, of rejected papers. For the girls' school, held in the same building, the number of papers given out was about half the above number.

A doubt, or something more than a doubt, has been expressed in some quarters as to the thoroughness and impartiality of these examinations, and as to their moral influence upon masters and scholars. It is by some persons considered a physical and moral impossibility that the enormous number of papers sent in towards the middle of March can be dealt with, otherwise than perfunctorily, in two months. It is true that a great many papers may be disposed of at a glance, but a vast number must require scrutiny more or less. It is impossible to estimate, with any approach to accuracy, the gross aggregate of the papers sent in from the whole of the elementary schools throughout the country in which drawing is taught under the auspices of the Department, but the number must be very great indeed. The Board schools in London furnish only a small fraction of the whole number, yet the fraction gives a very large figure. The Board had under its charge, on the 31st of December last, 177 boys' schools, 158 girls' schools, 165 infant schools, and 30 mixed schools. Little or no drawing is taught in the mixed schools for infants and girls; no instruction in drawing is given in infant schools, or to the scholars of Standard 1, in the girls' schools, but it is expected that all the boys in Board schools are instructed in drawing. An average of 200 drawing exercise papers from Board schools for boys, and of 100 from girls' schools, gives an aggregate of 51,200 papers for London Board schools alone. To the difficulty of accomplishing the Herculean task of dealing thoroughly with the papers, some schoolmasters have attributed the fact that the returns from the Department have, to their chagrin, placed the veriest tyros in the school to the front, and left the best boys nowhere. If this be so, it needs not be said that it must exercise a very discouraging effect upon the teacher, and have a demoralising effect upon the scholars, who are sharp in detecting the relative merits of their fellows.

The value and importance of drawing as a branch of instruction in elementary schools there will be none to dispute. There is scarcely any craft to which the boys may apply themselves in after-life in which ability to draw and to acquire sound knowledge of the principles of mechanical and constructive science will not stand them in good stead. Even in the every-day affairs of life, ability to draw is of great utility. It is a supplementary mode of expression more expressive in many cases than the powers of speech. Cases are of constant daily occurrence in which persons able to use a pencil will convey more clearly, in a few seconds, and by a few strokes, information that could only be given otherwise by a long and perhaps turbid communication in words or writing.

Whatever the accusations may be as to School Boards and school managers introducing superfluities into the elementary school course, no one who knows anything of the subject will include instruction in drawing in the category.

THE NATIONAL MONUMENTS OF IRELAND.

MR. THOMAS N. DEANE, R.H.A., Superintendent of the National Monuments of Ireland, has sent a letter to a Dublin paper (the *Daily Express*), giving information as to what steps have been adopted to preserve those structures designated "National Monuments." These consist of a certain selection of churches, round towers, crosses, &c., which have been transferred to the care of the Board of Public Works. Mr. Deane writes:—

"An erroneous impression has got into the minds of some people that unnecessary restorations have been effected, and that ruins will be made sham antiquities. This, if true, would be a fatal error, entirely at variance with the wish of the authorities, and show want of ordinary judgment on my part as superintending architect. To combat this opinion is one of the main reasons of my addressing you. In this letter I shall confine my remarks to the churches at Glendalough, as being well known and frequently visited, and in describing the works on each shall adopt the usual names by which they are called, and avoid as much as possible critical explanations, which sometimes draw down severe comments from architects and archæologists, which partake of an acrimony foreign to the questions at issue. In fact, I wish to be an architectural 'badger difficult to draw' on any point.

The ruins at Glendalough consist of the following:—Trinity Church, the Cathedral, the Round Tower, the Priest's House, St. Kevin's Kitchen, Reefert Church, Our Lady's Church, St. Kevin's Oratory, and St. Saviour's Priory. These have for years excited the interest of the archæologist, and to some extent the veneration of the public. Ledwich, Colonel Conyngham, Bigari Beranger, Stephens, Lord Dunraven, but especially Petrie, have drawn and investigated the buildings. The work of the last named is a complete handbook to the churches, and for those who wish to go deeper into their history I can only refer them to the valuable work of this great artist and archæologist. With regard to the question of restoration, I may mention that with the exception of a few ring stones to complete the missing ones at St. Saviour's Priory, and which, being uncarved, are plainly distinguishable from the old, no new cut stone has been used, and no walls have been rebuilt or added to where such addition or rebuilding could possibly be avoided. No speculative attempts have been made to reproduce anything that had the slightest shadow of uncertainty.

Trinity Church.—This is the first church the visitor meets with, on the left, as he enters the valley of Glendalough. It was, like many

others, overgrown with trees and ivy, its interior a mass of rubbish, the roots of ash forcing asunder its walls, no protecting fence, the whole subjected to neglect, and the structure on the verge of ruin. The first thing done was to clear the interior of rubbish, carefully selecting all stones of an architectural character. Amongst these were found the arch stones and jambs of the south doorway, the complete stonework of the windows in the western end, one window of the chancel on the south side. All these have been re-erected in their proper places, the northern quoin has been rebuilt, the gable denuded of destructive ivy, and the stones secured, cement concrete put into the interstices of the wall, the latter being carefully pointed, the cement kept back from the face, so as to maintain the ancient character of the masonry; a proper surrounding fence with gate and stile to prevent the inroads of cattle.

The Cathedral.—This is the most important as to size of the buildings of the valley, exhibiting three distinct periods of architectural detail. Piles of stones obstructed the inspection of the visitor, graves in the wildest confusion were on all sides. On excavating the rubbish near the north doorway, the jambs and bases of fine detail and of Caen stone were uncovered. The rubbish at the eastern end supplied nearly all the cut stone work of the interior of the eastern window. Beneath the site of the chancel arch were found sufficient of the arch stones to enable a large portion to be reset. One window of the chancel was discovered on the south side. The side windows of the nave were opened. The ground to the exterior has been levelled as far as consistent with respect for graves. The interior of the church is laid with sods and the walls pointed and grouted with cement concrete. The accumulated rubbish has been found rich in many things of interest, amongst others a stone cross, beautifully carved, which, being broken into three pieces, has been repaired and re-erected.

The Tower.—Such was the dilapidated condition of this structure that the birds were able to fly through the gaps in the stone work from the top to more than half way down to the ground. The interior of the tower and surrounding rubbish was carefully examined, and produced nearly all the stones of the conical top, which has been rebuilt, the apex stone being found in the cathedral. Tons of stone and cement have been filled into the gaping sides, and the structure is now safe for ages.

The Priest's House.—This curious little building, which, in 1779, drew the peculiar attention of Beranger, owing to its exquisite detail and peculiar pedimented doorway, was nearly level with the ground when the works came under my charge. On careful examination of the surrounding *débris* every stone was discovered, which enabled me to place it in exactly the same condition as it was in 1779. The carved tympanum, saved from destruction by Sir William Wilde, was returned, with praiseworthy liberality, by his representatives, and set in its original position.

St. Kevin's Kitchen.—Little has been done here farther than resetting the loose stones of the tower cap, pointing the stone roof, and removing a mass of vegetation from the roof of the sacristy. This building will form the receptacle for the various crosses, inscribed stones, &c., which have come to light in scattered positions. The surrounding fences have been repaired, and the adjacent ground laid down in grass.

Our Lady's Church.—Similar operations have been effected here as in other churches; but the *débris* of masonry has been less rich here than elsewhere in sculptured stones and other objects of interest. A few coins and two keys have been discovered

Reefert Church.—The tomb of the kings, westward of the others, and near the lake shore, is peculiarly interesting from an archæological point of view. (See Petrie.) A mass of ruin entirely filled up the interior of the building. On its examination the stonework of the east window, the entire of the chancel arch, two of the windows of the south wall of the nave, were discovered. These lay as they fell, and it is proposed to re-erect them. To the south of the western entrance a beautiful inscribed stone has been found. In addition to this stone now discovered at Reefert Church, Dr. Petrie has drawn another which lay in the same mortuary chapel, and which is said to have been entirely destroyed by tourists, who, deeming it the tomb of some unknown King O'Toole, have from time to time broken off bits of the monument to carry away as curiosities. It was a truly historic monument, as it was inscribed to the memory of Corpre, son of Cathal, an anchorite of Glendalough, whose death in the year 1013 is recorded by the Irish annalists. Four other inscribed stones have also been illustrated by Petrie, a portion of one of which is still preserved. It was one of the finest sepulchral slabs ever found in Ireland, carved with a beautifully-designed cross, and inscribed to the memory of two ecclesiastics interred in the cathedral—Diarmid and MacCois, the former having been an anchorite of Glendalough, whose death in 955 is recorded in the 'Annals of the Four Masters.'

St. Saviour's Priory stands in an isolated position, considerably eastward of all the other churches; such parts as remain present more careful design than any of the others. If possible it was in a more ruinous condition,—a heap of stones, tangled brushwood, and large trees; amongst these stood the jambs of the chancel arch, carved capitals, bases, and a few arch-stones were to be seen. Careful examination brought to light the entire number of the ring stones, with the exception of four, the stonework of the double eastern window, the doorways and windows of the south side, three windows on the north and east, besides numbers of wrought stones, whose positions were doubtful. All these, with the exception of the latter, have been reset in their places. The detail of the eastern window is unique and very beautiful, and the whole forms a relic of careful architectural detail hardly to be surpassed.

This being a popular description of the ruins, I have avoided dates, vexed questions, and other matter calculated to provoke discussion, and am only anxious to draw the public mind to a real interest in the relics of the past, in the hope that a work commenced in a limited manner, as to the number of selected buildings, may be extended, and that our Irish ruins may have fair consideration, and be snatched from the destruction which inevitably awaits them if they are left as they are at present."

THE LATE MR. JOHN YOUNG, ARCHITECT.

WE hear with regret of the death of Mr. John Young, which took place on the 23rd inst. at his residence, St. Mary's Lodge, Stoke Newington, in the eightieth year of his age.

Although he was not a member of the Institute of British Architects, he was well known as an architect of ability and extensive practice. He was district surveyor of the Eastern Division of the City of London for a period of twenty-five years, having been appointed to it by the Court of Aldermen prior to the formation of the Metropolitan Board of Works.

Coming to London in his twenty-third year, Mr. Young was first engaged as assistant to Mr. Porden, the architect to the Marquis of Westminster; then he assisted Mr. Decimus Burton, and prepared the drawings, under his direction, for the Colosseum in the Regent's Park, and personally superintended the construction of the framing of the dome. Afterwards he was engaged by the late Mr. Thomas Cubitt for the houses on the Eaton-square and Pimlico estates; and then was in practice in Clarges-street, Piccadilly, for a few years.

At the time of his marriage, he became the principal assistant to Mr. William Montague, the architect (or as the title then ran) the Clerk of the City's Works, at the Guildhall, London, where he remained until Mr. Montague's decease. He was appointed by the Corporation of London as *locum tenens* during the vacancy, and being a candidate for the appointment, was unsuccessful in a court of over 200 members by nineteen votes only, the choice falling on the late Mr. J. B. Bunning.

From that time he practised at 35, King-street, Cheapside, and was held in esteem by his professional brethren for his loyalty, good judgment, and sound sense. Among his works may be mentioned the Religious Tract Society's premises, Paternoster-row; the Ebbw Vale Company's offices, Dowgate; the Cancer Hospital in the Brompton-road; Broad-street Ward Schools; Cripplegate Schools; Tower-hill (Roman Catholic) Schools; Hackney Roman Catholic Schools; the former Guildhall Library; residences at Roehampton; mansions for several country estates, the latest being that of Sir James Duke, bart., Laughton-park, Sussex; restorations of churches in Suffolk, his native county; and many buildings in the city of London.

As a surveyor he was well known in compensation cases of an earlier period than the present; having had, during the formation of Cannon-street, as many as 320 cases for settlement at one time.

PHYSICAL GEOGRAPHY.

A PAPER was read last week by Mr. Alfred Haviland, M.R.C.S., Medical Officer of Health for the Northampton combined districts, at the Social Science Association, London, on "Physical Geography in Relation to Sanitary Science," — Dr. Richardson, F.R.S., in the chair. The paper embraced an interesting account of the form and structure of the earth, and the nature of its surface, aided by diagrams and drawings of its features and prominent characteristics. The valley system, in relation to disease, was much commented upon, showing their varied character, as some were sheltered from prevailing winds, while others were exposed and subject to atmospheric influences which resulted in disease. He showed that where heart disease was most fatal, the greater amount of rheumatism existed, and pointed out how the physical features of a valley conduced to bring about a state of atmosphere which was popularly supposed to cause rheumatism. The form and structure of the earth, as well as its superficial and meteorological character should be studied in relation to sanitary science, and sanitary authorities and others should be able to judge for themselves of what localities to avoid when erecting dwelling-houses, hospitals, schools, or other institutions. The maps and diagrams were important to medical practitioners and others as showing at a glance the seat of certain prevailing diseases; and the paper strongly urged the necessity of a more extended knowledge of physical geography and the study of sanitary science connected with it. A discussion ensued, in which Mr. Walford, F.S.S., Mr. Latham, C.E., Mr. G. J. Symons, Dr. John Simon, F.R.S., the chairman, and others took part.

EDINBURGH UNIVERSITY COMPETITION.

SIR,—I beg to call your attention to one of the most glaringly dishonest competitions that has ever been placed before the public.

You will see in the papers herewith sent the letter of a subscriber, setting forth, in plain terms, what the committee for the new University buildings, Edinburgh, have been doing the last eighteen months, where they propose to expend 261,500*l.* in the purchase of a site and the erection of the new buildings; whereas, in their instructions to the parties competing, they restricted the cost of the buildings to 70,000*l.*, the site having been previously secured at a cost of 36,000*l.*: thus giving the architect selected a sum of 225,000*l.* to execute the work that they insisted upon the others doing for 70,000*l.*

AN OLD SUBSCRIBER.

*** The course which this competition has taken is beyond our comprehension. Somebody will perhaps explain. The selected architect is Mr. R. Anderson.

THE OWNERSHIP OF LAND.

IN Miss Martineau's "Autobiography," recently published, occurs the following paragraph,—

"I now expect, as I have anticipated for many years, a war in Europe which may even outlast the century, with occasional lulls; and I suppose the result must be, after a dreary chaotic interval, a discarding of the existing worn-out methods of government, and probably the establishment of society under a wholly new idea. Of course, none but a prophet could be expected to declare what the new idea will be. It would be rational, but it is not necessary here, to foretell what it would not be or include. But all that I feel called on to say now, when I am not writing a political essay, is that the leading feature of any such radical change must be a deep modification of the institution of Property, certainly in regard to land, and probably in regard to much else. Before any effectual social renovation can take place, men must efface the abuse which has grown up out of the transition from the feudal to the more modern state, the abuse of land being held as absolute property, whereas in feudal times land was in a manner held in trust, inasmuch as every land-holder was charged with the subsistence of all who lived within his bounds. The old practice of Man holding Man as property is nearly exploded among civilised nations; and the analogous barbarism of Man holding the surface of the globe as property cannot long survive. The idea of this being a barbarism is now fairly formed, admitted, and established among some of the best minds of the time, and the result is, as in all such cases, ultimately secured."

Existing modes of procedure, which have the further effect of handing over to the owners of land an immense proportion of the savings and accumulations of the rest of the community in the shape of all the houses and buildings put upon it, will go far, it may be feared, to hasten the possible catastrophe.

A PLEA FOR THE FARM LABOURER.

FEW persons have spent much time in farming districts without noticing the happy simplicity plainly marked in the features of the husbandmen. Although too often badly housed, underpaid, and uncared for, they generally preserve their primitive simplicity. Whilst others start into action, and ardently rouse themselves to resent any fancied wrongs, farm labourers patiently bear the yoke, and when driven at length to make a stand and demand to be treated as their fellow-men are, they display less fierceness and heartburning than those congregated in towns are wont to display.

The endurance of the farm labourers has been most creditable to them. When others would have shaken the "pillars of the State," and have essayed to right their wrongs, they have presented a spectacle of heroic fortitude and long-suffering not to be equalled by any other set of men, and never to be witnessed beyond our Isles; nor does this non-resistance arise from apathy or ignorance. Who knows better than they know what privations they have undergone, and how hardly they have laboured?

But how few there are who have manifested any real concern about them,—their homes and their comfort!

They have not failed to notice this, and know well that their struggle for improvement of their condition would be fruitless so long as the body of the people were indifferent to their cause. They knew of what little avail it would be for them,—poor and unlettered,—to struggle with affluence and education. So, calmly they invoke the aid of Providence, and patiently await the answer to their prayers.

It is not cowardice that has restrained them from rising for self-protection. The army of England is mainly supplied by the back-bone of the farm labourers. That back-bone has never been broken, and even when reduced to the thin red line, defied the prowess, arrested the progress, and hastened the decline of the modern Alexander. The men who bear the brunt of both wind and weather, rise with the dawn, and endure the hardest labour, are not to be termed "cowards." They often speak their minds forcibly, yet malice seldom lurks behind.

It is not, however, my wish or intention to represent them as being paragons of perfection. They have their faults, and who, indeed, has not his faults? Their faults are mostly owing to their position, which in many respects is not altogether an enviable one. The houses in which they spend their few hours of leisure have been so often noticed in these pages as to need no elaborate description. Suffice it to say that dogs have substantial kennels, horses commodious stables, but labourers have been less studied than these noble animals. In their homes there is much untidiness, but how can it well be otherwise? Cottages are not mansions with abundance of room, but rather close, poking little places in which it is well nigh impossible to dispose of a family. And labourers have families. Many years have elapsed since our great dramatist made his fool philosophise, "So beggars marry many," yet the force of that philosophy has not been weakened by time. How they live few can tell, but still the fact remains. The rooms are small and few in number; the sanitary arrangements are most deplorable. It is not, therefore, reasonable to expect that these poor labourers will manifest much anxiety to make their homes attractive. Those poor old dingy, weather-beaten homes of theirs, how can they be made attractive? Tottering to their downfall, what good is it to patch them?

Now, it is indisputable that no class of men is more hardly worked than are these farm labourers, and it is very much to be doubted if any class of men be less cared for.

The mechanic has always had his friends, and has always been supported, but these farm labourers have for the most part been left to gain their own ends. The more honour to them for the temperate manner in which they have endeavoured to do so. Yet, even at the present moment, how vastly inferior is their position to that of a labourer in the building trade, or that of an iron-worker.

Taking the case of the labourer in the building trade, his labour does not nearly partake of the moiling, wearisome character of that of the farm-labourer, yet he receives a far better wage and does not work nearly so long.

Taking the case of the iron-worker as being somewhat analogous to that of the farm-labourer, since in many instances a dwelling is provided for him by his employer, it will be found that these houses contain every convenience, have been substantially built, and although smoke has somewhat blackened the exteriors, they are greatly to be preferred to the olden type of cottages. The wages received by the iron-worker would take away the breath of the farm-labourer; and yet, notwithstanding these benefits, the houses are quite as dirty and untidy, if not more so, than are the cottages.

The high wages these men receive have only tended to render them more besotted and more profitable customers to the Bonifaces they enrich. It is a mournful sight of a Monday morning to see them going to their work as dirty as when they left it on the preceding Saturday afternoon. With all the money they receive, exceeding even the salaries received by men of culture and high attainments, their children may be seen with bare feet and scanty clothing. The dog may have a jacket; the children may not have boots.

Allowing that the farm-labourers are faulty in many respects, I maintain that they are, nevertheless, in every way superior to the more favoured class of whom I am now writing. About their homes one is seldom shocked by the sounds of blasphemy.

Contrasting the position of a dejected farm-labourer with that of an iron-worker, it is indeed high time that the cause of the former were championed and his rights enforced. Why, when all are pushing forward, should he lag dolefully behind? Has he not a more substantial claim to urge than any others have? It is very much to be hoped that his claims for an improved dwelling and for increased wages will be heartily supported by a generous people, and that not for political claptrap, but from genuine sympathy.

THOMAS BALES.

"DO OUR WORKMEN IMPROVE?"

SIR,—I was rather surprised to read the letter of your correspondent, "F.R.I.B.A.," in your pages, and I should be glad if you would kindly allow me to make one or two remarks with regard to it.

I have been a clerk of works for many years, and in the course of my business have visited nearly all the large towns in England, and the conclusion to which I have arrived is that where wages are moderately high there has been no difficulty whatever in finding first-class workmen; and I have also come to the conclusion that there is no difficulty in finding first-class men as clerks of works or builders' foremen, if you will pay them.

Your correspondent has had forty applications for an appointment as clerk of works, and only two worth consideration. To find a cause for this he looks to the effects of trade unions. Well, it may be so, but in this sense only, that trade unions have made the conditions of labour in the building trades so much better than they were twenty years ago, that it is difficult to induce men to leave the ranks for a position which offers them a very few more shillings a week, with a great amount of responsibility, of study, anxiety, and irritation. I have known parties offer to first-class men, who could lay down the most difficult problems in any and every branch of the trade, and write reports that were worth looking at, a paltry 2*l.* per week,—men, sir, of real command and ability; and is it likely that you will induce men to study the whole evenings of their lives, and pay their fees to the Mechanics' and Technical Institutions of the country, for the wages they can get as masons, carpenters, or bricklayers in London, Manchester, or almost any of the large Northern towns?

I am rather of opinion that if your correspondent had put his name to his advertisement, and had offered a reasonable wage, he would have had more than two applications that would have been worth consideration. (I do not say that he did not do so; but if so, it is certainly a solitary instance.)

I notice this week that a certain Local Board has appointed an assistant *engineer* and *surveyor* at a salary of 70*l.* per annum (27*s.* per week), and an inspector of nuisances at 60*l.* per annum, or 23*s.* per week. Do people expect to get able men for these salaries?

The letter that your correspondent forwarded you for publication, as an instance of what replies he received to his advertisement, is certainly enough to make any man of ability get red in the face; but it is the outcome of the competitive system of advertising. For instance, you advertise for a clerk of works, and ask that all applicants must state their terms; the consequence is that men like those to whom your correspondent refers go in for the job at any price.

CLERK OF WORKS.

*** The above will serve to represent four other letters from clerks of works.

CARDIFF.

LAST week a skating-rink and winter garden were opened in Cardiff. The entire length is 249 ft., the breadth 43 ft., with a skating area of 6,500 ft. The main entrance to the rink is in the centre of a large block of buildings, comprising shops on the ground-floor, the first-floor being used as living-rooms; on the second-floor there are workmen's dwellings. In cases of emergency, there is from the rink a communication from the staircases used by those living in the workmen's dwellings. The rink looks gay and cheerful. The roof is lightly constructed of timber, and glazed with Hartley's rolled plate glass over the entire surface of the rink and garden. Mr. Cutlan, of Cardiff, was the architect; Messrs. D. C. Jones & Co., of Gloucester, were the builders; and Mr. C. Robson was foreman of works. The cost of the building has been about 16,000*l.*

A NEW WATER SUPPLY FOR WIMBLEDON.

THE Wimbledon Local Board appear to be desirous of strictly carrying out local self-government in all matters which essentially concern the interests of the parish. They have just completed the engineering and other works in connexion with a new sewage farm for irrigation purposes, and are now engaged in the construction of a new cemetery immediately adjoining. In addition to these works, they are likewise taking steps to obtain a separate and distinct water supply, independent of one of the Metropolitan Water Companies, by which the parish is at present supplied. They are negotiating with an engineer who has laid certain plans before them, and as a preliminary proceeding they have just issued the following interrogatory communication to the ratepayers within the parish:—"The Wimbledon Local Board being anxious to obtain a constant supply of pure water, and at a cheap rate, for the use of the parish, have obtained from a civil engineer of large experience, a scheme for carrying out the same, which has met with the approval of the Board. To assist them in completing their calculations, the Board request you to make a return, on the form appended, of the amount paid by you to the Water Company for the past year."

THE NEW DRINKING-FOUNTAIN AND CATTLE-TROUGH AT THE BOROUGH MARKET.

MR. BEVAN, of the firm of Barclay, Perkins, & Co., has presented a drinking-fountain and cattle-trough to the Borough Market trustees. The fountain, which was designed by Messrs. Jarvis, architects, was formally opened last week, in the presence of a large body of spectators, by the donor, Mr. Bevan, who in inaugurating the structure, observed that he considered the fountain, and more especially the trough for the cattle, was much required, and he hoped they would be generally used. The trough, as well as the base of the fountain, is of stone, upon which rests a polished granite column, supporting the fountain, surmounted by a terminal spire. The structure has been placed in the market, opposite St. Saviour's Church. Mr. J. W. Seale, of the Apollo Works, Walworth, has carried out the whole of the works. Mr. Boulden, in receiving the fountain on behalf of the trustees, said it would prove invaluable to the horses which came to the market in such large numbers.

"Examples of Theatrical Decoration" is the title of the last-issued trade-book of the Papier Mâché Company (Wellington-street), and serves to show what they have done and are prepared to do in that way. Papier Mâché is a very available material for decorations of a certain kind, and if the shapes which it takes are not always those which give delight to people of cultivated taste, it is the fault of those who make the designs.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE eighth meeting of the session was held last week, the Rev. S. Mayhew in the chair. Further inspection was announced of the large Roman column found some years ago near the East Gate, Gloucester, and most probably the remains of a Roman temple of considerable dimensions. Mr. Prigg reported the discovery of a Roman villa at Icklington with a hypocaust, found in ploughing a field, a portion of the site of the Roman station. Mr. Baily exhibited a misericord of the sixteenth century, having a deep ribbed blade, found on the site of old St. Thomas's Hospital. The chairman described several objects of pottery, including a white earthenware cup of the sixteenth century, in the form of a Roman poculum, and two very fine plaques from the Roman factory of Worcester. Mr. Syer Cuming read the first paper of the evening, and in it he traced the history of domestic needles and their cases from the earliest times. He quoted the first mention of them by our common ancestor Eve, and also some verses of ancient date embodying the still more ancient tradition that the rose had no thorn before the fall. Some curious needles used by foreign and aboriginal tribes were shown, and which were formed of a species of thorn. Chinese needles are as early as those of Egypt. Employed in Europe from the earliest date, the lecturer exhibited a large collection of needles of pre-historic date found in London and elsewhere, some at a great depth beneath the soil, and stated that the word meant literally "pointed wood,"—although some of those met with are of iron, bronze, and bone. Examples of the Saxon "Naedil" were shown, and the custom of giving a needle and thread by the bursar of New College to each student on the 1st of January was alluded to. Needles were made in England in 1545; before then they were mostly of foreign manufacture. Mr. Brent exhibited a large collection of ancient needles, and the chairman many others of the Stone period. The second paper was by Mr. Loftus Brock, F.S.A., on an ancient crypt recently demolished at Aldgate. It was at the corner of Jewry-street, and was found prior to the removal of the old houses above it. It was vaulted throughout, and was of the middle of the fourteenth century. The City authorities gave many facilities for its investigation, and carefully executed plans have been made for the Association as a record of the building, which will be published in the *Journal*. An interesting discussion followed, in which Mr. Robinson reported the discovery of an arch of the old Priory of Holy Trinity, Aldgate. Mr. Geo. Wright, F.S.A., reported from Mr. Reynolds, of Bristol, the discovery at Old Cleeve Abbey of the foundations of what was thought to be the old refectory running north and south, beneath the existing and later building, which is east and west.

SANITARY CONDITION OF THE WAR OFFICE.

SIR,—Taking the report on the sanitary condition of the War Office as a text, the *Times* this week reads the architectural profession an unusually sharp lecture on its deficiencies in sanitary matters and ignorance of modern appliances for this purpose.

It is difficult to comprehend the conclusions either of the report or the lecture. In both, the windows are apparently regarded as the only direct mode of ventilating a room, and the crowning sin which has been committed in this case consists in the windows of certain rooms in the War Office having been placed so low in the walls that there must, as it is alleged, be a well of foul air stationary between the heads of the window-openings and the ceiling. If the windows are to be considered as the proper outlets for foul air, then not only must a large proportion of our public rooms throughout the kingdom be regarded as uninhabitable, but, in such a climate as ours, where windows require to be kept closed, every living-room, during the greater part of the year, must be held to be a well of foul air from floor to ceiling. It is obvious, then, that the ventilation of a room must be made independent either of the windows or their position, and it is singular that the question of their position should have been made a point of special importance in the report, or referred to with such emphasis in the *Times*. The chimney is the natural and most powerful foul-air extractor in every room. A ventilator, therefore, connected with a properly-constructed chimney near the ceiling line, would render the existence of a well of foul air in the position described an impossibility.

The condition of the War Office is in the report further considered hopeless because some of the passages are narrow, indifferently ventilated, the air contaminated by closets situated in these passages, and foul air is thus supplied to the rooms adjoining. In this and probably most cases, it is preferable to make each room independent of any other portion of the building by providing a fresh-air inlet direct from the external air. Neither the condition nor the narrowness of the passages would thus have any bearing on the ventilation of the rooms. As to the closets, if sewer-gas is properly cut off, and drains efficiently ventilated, in no case an insurmountable difficulty, the closets ought to be innocuous; where this simple precaution is overlooked closets can become dangerous and objectionable whether situated in narrow or in wide passages. Where it is effectually provided for, the position of the closet becomes a matter of minor importance. By a simple contrivance a closet may be made an uposast, and thus converted into a purifier rather than a contaminator of a passage.

In the case of the War Office, there have been undeniable omissions; but clearly there are motes in other than the architectural eye. K.

THE LATE MR. GEORGE ALLEN.

SIR,—I regret to notice the death of Mr. George Allen, aged seventy-eight years, at Lowestoft, of the firm of Allen & Craig, net-makers there,—a gentleman well known in London, in the building trade, forty years ago, having been principal foreman at the New Houses of Parliament for some years. He afterwards left there to conduct the works at Somerleyton Hall, near Lowestoft, then building for Sir S. M. Peto, bart.; after which, to a great extent, he retired from business, taking only occasional jobs as suited him.

As showing the style of the man, for a building he had in hand in Norwich he asked his masons if they could fix the work. The answer was "no." "Then," he replied, "I will fix the work myself, and have you for my labourers." What can our striking men think of this? I may state here that the last new pier built in Yarmouth was carried out by him. A violent storm came on before the work was completed, and drove a vessel right through it. Some years ago, to show that he was equally alive to the beauties of other trades besides his own, he published a section of the Westminster Hall roof.

As a foreman, he would never find fault with any of his men if not deserved; as a gentleman, I willingly bear testimony to his straightforwardness and uprightness; and as a Mason I am proud to acknowledge him. A MASON.

Books Received.

A Handbook to the Practice of Pottery Painting. By JOHN C. L. SPARKES. Lechertier, Barbe, & Co.

THIS is a most practical and useful little book, without a superfluous word in it. The author, who has, as most of our readers know, been for a good while the director of the excellent Lambeth School of Art, and is now head master of the Art Training School at South Kensington, has a thorough acquaintance with the processes of pottery-making, as well as with the principles and practice of the artistic decoration of pottery; and though the book, which only extends to fifty pages, is not, of course, intended to give instruction in the manufacturing of pottery, sufficient is told us of the processes to give the designer a correct idea of the basis upon which he has to work. A schedule of the colours required in pottery-painting is given, a description of the materials required and of the process of working, and hints as to the special points which must be attended to in order to render the design effective and suitable for the position and the material in which it is produced.

This small and inexpensive book seems to contain, in fact, all the information necessary to start the student of pottery-painting on his path, in which, of course, as in other arts, experience and practice are the real and ultimate teachers; but in this, as in other arts also, it is a saving of many steps to be sure of starting the first one right. We cannot but commend this handbook to the attention of ladies, especially those who might find the knowledge of an art so agreeable, and so suitable to feminine taste and manipulation, a very valuable source of addition to their income and consequent independence. There is much attention being given now to the subject of employments and professions for women; and here is one which is in the highest degree suitable to those of them who have any artistic taste and ability; one which some of them are already carrying on with great artistic skill and we hope pecuniary advantage; but the taste for art of this kind is so much on the increase now, that we fancy there must be considerable space for new-comers in the field. One or two reasons for the peculiar interest which is felt in pottery are very pleasantly expressed by the author in his concluding pages. He reminds us that "Pottery owes nothing of its beauty or serviceableness to its material,—for that is but the dust beneath our feet,—and everything to the hand that fashions it and to the mind that directs the hand; so is it that it comes to have so purely human an interest; it is a bit of man's work, with no adventitious aid whatever. If the form is beautiful, or quaint, or ugly, or commonplace, it is that the plastic clay has followed and exactly reproduced the conception in the maker's mind; it is formless, without coherence, and all but colourless; it takes the form, the consistency, and the colour that are ideal with the man who transforms the grey earth into a piece of pottery; and when he has done this his handiwork lasts for ever. . . . . The most frail of man's productions is yet the most permanent. The glorious tints on the majolica ware are still as bright as when they were drawn from the kiln, while the pictures of Raffaelle and Lionardo, painted in the same generation, are already fading. We have perfect specimens of Greek pottery that cannot be of a later date than a thousand years before the Christian era. Glazed mural tiles have been discovered among the ruins of Babylonian palaces, still bright enough to decorate a king's chamber; and in the catacombs of Egypt are found glazed figures of Ra, the sun god; of Anubis; and of the sacred Scarabæus, as pure and brilliant in colour as the latest productions of Deck or Minton. While this permanence and the peculiar plasticity of its material make the study of ancient pottery indispensable to the archæologist, and interesting to every intelligent person, its potentiality for extreme beauty of form and colour recommends it to all who possess any degree of æsthetic appreciation."

Les Travaux Publics de la France. J. Rothschild, Paris.

THIS is a specimen number of the text and illustrations of what will be, if completed on the scale indicated, a highly important and interesting publication. It is intended as a full account and illustration, with the aid of woodcuts in the type, and beautiful full-page photographs, of the great engineering works carried out under the orders of the Minister of Public Works in France, including bridges, roads, railways, the manipulation of rivers and canals and aqueducts, seaports, lighthouses, and beacons. The book is published under the supervision of M. Léonce Reynaud, Inspector-General of Roads and Bridges, and its ambitious object may be best described in the words used in the prospectus:—"We talk freely of the immense public works executed by the Romans, and admire their grandeur even in ruins; but people do not think of asking whether after all we have not done greater and better things in but a short period of time, and if the long aqueducts of the Campagna of Rome and that of the Pont du Gard have not been surpassed by works executed in the present day." The publication before us is designed, in fact, to indicate the claim of modern France to be considered the successor of ancient Rome in the matter of great engineering works for the public benefit. The *point de départ* of the work has been the collection of photographs sent to the Vienna Exhibition in 1873 by the Minister of Public Works, and which appears to have caused more surprise to French spectators than to foreigners; the French outside the engineering world not having by any means realised what was being done in their own country.

A considerable collection of photographs and models of French engineering work was exhibited, as our readers may remember, in one of the recent International Exhibitions at Kensington, subsequently to the Vienna Exhibition, and forming, we conclude, part of the illustrations originally sent to Vienna. We commented on the collection at the time at some length. The specimen before us of the new work which is to bring this information on French engineering structures in a fuller and more permanent form before the world, is a large folio publication, with the letterpress in large type on a handsome wide-margined page, and accompanied by several admirable photographs, representing two or three bridges and viaducts, the entrance to Havre harbour, and the aqueduct, stretching for miles over the country, by which the waters of the Vanne are conveyed to Paris. This system of the Vanne was one of those which were fully illustrated by models and drawings in the English Exhibition before referred to. There is also a view of the lighthouse at Douvres, and an interesting diagram showing the system by which, in the Straits of Bonifacio, between Corsica and Sardinia, a shallow portion of the channel is defined by a coloured section of rays from two light-

houses crossing each other, the red rays, as shown on the diagram, covering in each direction the dangerous ground, with a sufficient margin to afford ample warning. One of the lighthouses, on Lavezzi Island, by a section of green rays on the opposite side, covers in the same manner another part of the channel which is too thickly sown with islets to be safe for navigation at night. The view of the lighthouse before mentioned seems to indicate that French engineers are not always any happier than their English brethren in the matter of the external expression and design of their structures; the returned curve above what may be called the plinth has a very bad effect, and gives quite a false impression of the scale, which we should imagine to be only half what it is but for the two figures standing by the entrance. In the main, however, we are inclined to say that French engineers' designs are better than English; there is certainly evidence of more deliberate intention to do the best in this way. As to the practical side of the matter, there can be no question, we apprehend, that the standing of French engineering is at least as high as that of any other country in the world, and perhaps higher. The work of which a specimen is before us is one to which we should very much like to see a parallel publication in England, giving the same care and liberal expenditure to the illustration of English engineering works. How far the French excel us in their spirit and enterprise in publications of this class we have remarked too often to think it necessary to bestow words on the subject again. It is only fair, however, to mention that the French Government aid the publisher in this case with a large subscription: which, again, is a hint for our own Government.

We may add that the engineers specially connected with this publication, and with the works to be illustrated in it, are M. Felix Lucas, of the Department of Roads and Bridges; M. H. de Lagrené (Rivers and Canals); M. Ed. Collignon (Railways); M. Voisin-Bey (Seaports); and M. E. Allard (Lighthouses and Beacons). We wish the new publication success. English engineers ought to take some interest in it.

Brick Ornament and its Application. Part I. 2, Finsbury Pavement.

ALTHOUGH this is nothing more than the trade book, pure and simple, of Mr. James Brown, of Braintree and Chelmsford, it will be found of real value by all who desire to use in their architecture moulded and enriched bricks. The specimens given, including even complete gables, are very good, and a price list accompanies them. The work has been prepared for publication by Mr. George Sherrin, to whom we offer our compliments.

STAGE SCENERY.

As you, Mr. Editor, have been, in your time, a great promoter of improvement in scenery upon the stage, I hope you will allow me to mention one point in respect of scenery that requires some reform. The position of doors and windows is often very ridiculous, they being placed in most contradictory and impracticable situations. Take, for example, the scene of Pip's chambers in "Great Expectations," now performing at the Royal Aquarium (the acting deserving a better audience than the one of which I formed a unit). The window supposed to light the room from the street is close to the door, on the same plane, and the characters are actually shown out and into the room through the doorway on the stairs, to pass behind the window, which in fact must be impossible. A little thought was wanted on some one's part. In nine cases out of ten will be found in scenes some error as to position of doors, windows, and fireplaces. Why not exclude (unless really wanted for the action of the piece) all windows, which may easily be supposed to be placed in the side of the room between the audience and the stage? Y.

New Market Room, East Grinstead.—Mr. Absolom, of East Grinstead, has just erected a commodious market-room at the rear of the Crown Hotel. Mr. Burstow, of Horsham, was engaged to furnish the plans, and Mr. Godley, of East Grinstead, was entrusted with the building. The room is 54 ft. long by 24 ft. wide, with a height of 13 ft. Over it is a new billiard-room, 33 ft. by 22 ft., with space for two tables.

"THE FINSBURY STEAM JOINERY WORKS."

SIR,—Will you allow me to correct an error which has crept into your otherwise generally accurate description of the above works? My drying-room will contain 5,000 deals as per Petersburg standard, and not "5,000 standards of deal." W. H. LASCELLES.

Miscellanea.

"Vital Air."—Dr. B. W. Richardson, F.R.S., delivered a lecture the other evening, at the Society of Arts, on "Vital Air," the name which Priestley gave to his discovery of oxygen. After describing the phenomena connected with breathing, Dr. Richardson performed an experiment of his own to show the effect of oxygen upon the blood. Following his account of the regular action of the animal economy with regard to "vital air" by other instances of irregular action, Dr. Richardson gave an account of those experiments of Brodie and Broughton by which they found that life-giving oxygen might become a narcotic poison. Attracted at the commencement of his career to these experiments, Dr. Richardson himself found that if the oxygen were continually renewed, the poisonous effect was not revealed. It was only when the same oxygen was breathed over and over again,—say three times,—that the animals placed in it died. But if you subjected this deteriorated gas to an electric discharge, it became again exhilarating and capable of supporting the slow combustion which is animal life. What the precise charge was, whether the electric sparks killed something added to oxygen by animals, and which hitherto had escaped all tests, or whether the sparks produced an allotropic change, he did not know, but the fact was undoubted.

The Opera House on the Embankment.—Lord Ernest Bruce, in the House of Commons, asked Sir J. M'Garel Hogg, member for Truro, and chairman of the Metropolitan Board of Works, what was proposed to be done with the proposed New Opera House on the Victoria Embankment, the works having been now long stopped in consequence of want of funds, it being also understood that the company intending to open that theatre had come to terms with the proprietor of Her Majesty's Theatre in the Haymarket; and inquired if he could give any information as to when it might be thought proper to remove the present remarkable building on the Embankment exactly opposite the windows of her Majesty's Office of Works. Sir J. Hogg said, "The time for roofing in the Opera House having expired, the Metropolitan Board of Works are now considering the course which they should adopt under the agreement. The Board have no knowledge of any terms which may have been arranged between Her Majesty's Theatre and the promoters of the New Opera House. With regard to the second part of the question, I can only say that I know of no building of the character described by the noble lord on land belonging to the Metropolitan Board."

Combined Shelters for Horses and Men, and Cabmen's Suppers.—On Wednesday evening about 200 persons, including cabmen and tramway men and their wives, were entertained at a supper (now given biennially), in the Friends' Meeting House, Leeds. After the repast, the company were shown some dissolving views; then a meeting was held, when addresses suitable to cabmen were given by various gentlemen. Mr. Harvey referred to the Sunday work of cabmen, and the secretary of the Leeds Cabmen's Shelters urged the resuming of the annual supper to the cabmen, and advocated the extension of the movement for introducing cabmen's shelters, of which there were now three in Leeds, and alluded to the design by Mr. S. O. Bailey, of Bradford, for a cab-stand to shelter men and horses, remarking that he did not see at present how the combined scheme could be successful, but admitting its importance and necessity. The remainder of the cabmen, &c., were to be similarly entertained on Thursday evening.

Accident to a London Architect.—The *Sussex Daily News* reports an accident at Pulborough to Mr. Good, architect, who has a country house in the parish. One evening recently, his trap came in contact with a large stone embedded in the side of the road, and overturned. Mr. Good and his groom were thrown out, but the latter escaped unhurt. Mr. Good, however, received somewhat serious injuries, we are very sorry to hear.

Goldsmiths' Prizes.—The Goldsmiths' Company have offered the following prizes, viz.:—50*l.* for the best design for some article in gold or silver, which, when manufactured, shall exceed thirty ounces in weight; 50*l.* for the best model for some such article as aforesaid; 25*l.* for the best execution and workmanship of some such article as aforesaid. Three prizes of 25*l.* each for (1st) the best design; (2nd), the best model; and (3rd), the best execution and workmanship of some article in gold or silver, which, when manufactured, shall be less than thirty ounces in weight; 25*l.* each for the best specimens of (1st) chasing or *repoussé* work, and (2nd) engraving. The prizes will be awarded in the month of December next. The Company have also resolved that a Travelling Scholarship of 100*l.* per annum may be awarded by the Wardens to a student who has shown exceptional talent, and who shall have obtained a prize for design for three successive years, in order to enable him to study art in the precious metals on the Continent of Europe. Well done, Goldsmiths' Company!

Shoreham Church.—A stained-glass memorial window has just been put in the long lancet opening of the north transept, manufactured by Cox & Sons, of London. It is of light and golden tints, with the lily and fleur-de-lys pattern worked over the centre quarries, and having a double border formed of the names of departed children (forty in number), in silver glaze, the base border having the words, "In Memoriam, Infantium Dormentium in Jesu." This window has been subscribed for by the parents. Mr. Edwards, the donor of the funds for the extensive restoration works just completed, is about to fill in the large west window with stained figured glass. A new roof is now being put on over the south aisle by Mr. Bruton, under the direction of Mr. Loader, architect.

Northumberland Avenue.—In the House of Commons Sir J. M'Garel-Hogg informed Sir T. Chambers that the Metropolitan Board of Works had received tenders for one-fifth of the building ground in Northumberland Avenue. Only one plot, however, had been as yet disposed of, and the elevation of the buildings to be erected upon that had been submitted to the Royal Institute of British Architects, and had been returned with suggestions. The Metropolitan Board was most anxious that the Avenue should be, in an architectural point of view, worthy of its situation and of the metropolis. Our supposition that the mode adopted for obtaining tenders for the land here was a bad one, has, we fear, proved too correct.

A Forthcoming Sale.—It will be seen by an advertisement which appears in our issue this week, that an interesting sale of furniture, tapestry, &c., is to take place at the King's Arms Royal Hotel, Lancaster, on the 11th and 12th of April, Mr. John Burton being the auctioneer. The "King's Arms" is the good old inn made famous by Charles Dickens in his "Lazy Tour of Two Idle Apprentices," and its collection of antiquities and curiosities is being dispersed in consequence of the retirement of the proprietor, Mr. Joseph Sly.

Royal Italian Opera, Covent-garden.—Mr. Gye has announced that the opera season of 1877 will commence next Tuesday, April 3rd, and gives a very strong list of *artistes*. During the season, in addition to the operas of his extensive *répertoire*, it is the intention to produce three, at least, of the following works:—"Les Vêpres Siciliennes" (Verdi); "Santa Chiara" (The Duke of Saxe-Coburg Gotha); "Nero" (Anton Rubinstein); "La Vispe Comare di Windsor" (Nicolai); and Wagner's "Il Vascello Fantasma."

The Brixton New Market.—In our descriptive notice, last week, of the new public market at Brixton, the opening of which we learn has been deferred for a fortnight, we omitted to state that the whole of the safes in the basement of the building have been supplied by the Milner's Safe Manufacturing Company, of Liverpool and London.

TENDERS

For alterations to the Balmoral Castle, Rutland-street, Pimlico, for Messrs. Rogers & Lipson. M. J. G. Needham, architect:—

Eaton	£610 0 0
Anley	590 0 0
Judd & Hawkings	494 0 0
Pringle (accepted)	488 0 0

Gasfittings.

Messrs. Christian & Sons.

For two houses at Towcester, Northamptonshire. Mr. T. Heygate Vernon, architect:—

Cosford	£1,279 0 0
Wheeler	1,140 0 0
Williams (accepted)	1,047 0 0

For repairs of No. 2, Tavistock-street, Tottenham-court-road, for Mr. Bromley. Mr. J. E. Furniss, architect:—

Saunders	£325 0 0
Bush	310 15 0
Gould & Brand	179 0 0
King	171 10 0

For erecting new school-room to the Mayfield-terrace Wesleyan Schools, Dalston. Mr. J. B. Walton, architect:—

Jarvis & Sons, accepted.

For alterations and additions to Plumstead Brewery, for Messrs. Mitchell & Beasley. Mr. G. Scamell, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Johnson	£3,300 0 0
Kirk	3,087 0 0
Brown	3,000 0 0
Grimwood (accepted)	2,693 0 0

For Portland stone in new offices, St. Mary Axe, City. Mr. J. H. Huxtable, architect:—

Schofield & Co. (accepted)	£1,036 0 0

For alterations to the old brewery premises of the Lichfield Brewery Company. Mr. G. Scamell, architect. Quantities by Messrs. Curtis & Son:—

Lovatt	£1,550 0 0
Dakin	1,384 0 0
Thorneloe	1,312 0 0
Woolley (accepted)	1,244 0 0

Accepted for the erection of a malting, at Thornton-le-Moor Brewery, near Northallerton, for Messrs. Baxter. Mr. G. Scamell, architect:—

Fawell (bricklayer, &c.)	£1,236 0 0
Fawell (joiner)	659 0 0
Teesdale, Bros. (ironfounders)	295 10 0
Pattison (slater)	168 6 0
Johnson (plumber, &c.)	39 17 0

For the erection of a malting, at Burton-on-Trent, for Mr. J. Eadie, exclusive of ironwork. Mr. G. Scamell, architect. Quantities by Messrs. Curtis & Son:—

Dakin	£9,741 0 0
Lovatt	9,000 0 0
Mason	8,320 0 0
Bowler & Beck	8,187 0 0
Low & Son	8,021 0 0
Maddox (accepted)	7,860 0 0

Ironwork.

Messrs. Thornewill & Warham.

Accepted for new Wesleyan Chapel at Hadfield, Derbyshire. Mr. W. Ranger, architect:—

Gill (excavator, mason, and bricklayer)	£1,420 0 0
Shaw (carpenter and joiner)	1,385 0 0
Beard (slater and plasterer)	342 0 0
Dawson (painter and decorator)	199 0 0

For new Primitive Methodist Chapel, Bognor, Sussex. Mr. W. Ranger, architect:—

Bushby	£525 0 0
Snewin	484 0 0

For the erection of St. James's English Presbyterian Church, with vestry and sessions-house, &c. Mr. T. Arnold, architect. Quantities by Messrs. R. L. Curtis & Sons:—

	Church.	Vestry, &c.
Merritt & Ashby	£4,697	£496
Browne & Robinson	4,629	454
Williams & Sons	4,570	460
Dove, Brothers	4,475	450
Harris & Wardrop	4,139	435
Burford	4,107	446
Manley & Rogers	4,093	437
Newman & Mann	4,016	416

Fulham Board of Works.—The tender of the Brunswick Rock Asphalte Company for the Latymer-road was accepted.

Shoreditch Workhouse.—In our list of tenders last week the name of "Syder" appeared as one of those who submitted tenders for the new kitchen. For "Syder" read "J. Rider Hunt."

TO CORRESPONDENTS.

R. C. S.—Only a Mason.—M. Z.—G. A.—R. A.—M.—Clerk of Works.—E. H.—T. C. N.—W. L.—H. C. B.—J. R.—J. K. M.—J. R.—J. P. (next week).—Bronze (next week).—J. P. (Gully).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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